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UNIVERSITY OF TORONTO



REPORT OF THE DEAN
OF THE
FACULTY OF MEDICINE

SESSION 1941-1942

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FACULTY OF MEDICINE

Toronto, June 30, 1942

*To the Graduates in Medicine of
the University of Toronto.*

*The Annual Report of the Dean of the Faculty of
Medicine for the Session 1941-42 is herewith forwarded to
you, with all good wishes and with the hope that you will
find in it information that will sustain your interest in the
School.*

W. E. GALLIE, M.D.,
Dean.

REPORT OF THE DEAN OF THE FACULTY OF MEDICINE

The year 1941-2 has seen many important changes in the Faculty of Medicine and much activity on the part of the Faculty Council and its various committees. This was due to the extensive rearrangement of the time-tables and to the many negotiations with the government, the other medical schools, the Dominion and provincial medical councils, and the hospitals, necessitated by the acceleration of the course. At first it appeared that it might not be possible to carry out the plan of acceleration determined upon last year owing to the financial difficulty in which about 40 per cent of the students found themselves through the elimination of the holiday time during which they were accustomed to add to their income. These difficulties, however, have been overcome and I am glad to report that the first year of the accelerated course has been completed and the second year begun, in a highly satisfactory manner. It would appear that aside from the curtailment of the rotating internship from twelve months to eight, the students are receiving as good a course as they ever did and without any great hardship. The only unhappy circumstance is that the very seriously depleted staff finds itself forced to carry on intensive teaching for ten months instead of seven and a half. The teachers, however, have welcomed this opportunity to make an effective contribution to the general war effort.

The final solution of the financial difficulties of many of the students came with the following order issued by the Adjutant General on April 27, 1942, to all District Officers Commanding:

ENLISTMENT OF MEDICAL STUDENTS

In view of the pressing need of medical officers to meet the requirements of the armed forces, arrangements have been made with the Canadian Universities to accelerate courses in Medicine by reducing the normal summer vacation periods to a minimum, thus enabling a student to cover the course in a considerably shorter time.

It has been decided to enlist students attending Medical Schools into the Canadian Army (Active) at any time during the last two academic sessions at University prior to qualifying for a license to practise during internship. During this period, students so enlisted will be granted leave with pay and subsistence allowance to enable them to complete their course, obtain a license to practise and become eligible for appointment as Medical Officers in the Armed Forces.

The following regulations and instructions will govern enlistment of the students attending Medical Schools at Canadian Universities.

(a) *Enlistment*

(i) Providing the student is physically fit (categories A, B or C) in accordance with the required medical standards and has been accepted by the D.M.O., he may be enlisted in the Canadian Army (Active) as a Private at any time during the last two academic sessions prior to qualifying for a license to practise or during the period of internship or before becoming eligible for appointment as a Medical Officer in the Armed Forces.

(ii) As Medical Officers are required for the Navy, Army and Air Force the Medical student, upon enlistment, will be afforded the opportunity to express his preference for the service to which he prefers to be appointed after obtaining a license to practise. No assur-

ance can be given that appointment to the service selected will be possible. The preference is to be expressed in the following pro forma which will be affixed to the M.F.M. 2:—

“Providing a vacancy exists I prefer to be appointed to

{	The Royal Canadian Navy The Canadian Army (Active) The Royal Canadian Air Force	upon becoming licentiate of Medical Council of Canada or receiving a license to practise the profession of Medicine in one of the provinces of Canada.
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.....	
Reg. No.	Name

(iii) D.M.O.'s should ascertain from Deans of Medicine the names of students volunteering for enlistment who are not considered likely to pass final examination. Such students should not be enlisted.

(b) *Service*

(i) Students in Medicine will be enlisted into the R.C.A.M.C., placed on strength of a District Depot, for all purposes, and granted leave of absence with pay and subsistence allowance, except as provided in para (c) (i) below.

(ii) The total period during which leave of absence with pay and allowance will be granted is not to exceed 24 months.

(iii) It will be the responsibility of District Medical Officers to maintain close liaison with the faculties of Medicine of Universities within their respective districts. They will familiarize themselves with the professional and scholastic qualifications and exercise general supervision in so far as Army matters are concerned, in regard to all students enlisted under these regulations.

(iv) D.M.O's will maintain a nominal roll of students enlisted and attending universities within their Districts and submit periodical confidential reports as directed by the D.G.M.S.

(v) During such time as the Medical School is not in session a student shall be liable to do duty with his unit, or be detailed for such military or professional duty as may be directed by the D.M.O.

(c) *Pay and Allowances*

(i) All students duly enlisted will receive pay of Private plus subsistence allowance of one dollar per day with the following exception:—

Medical students serving their internship in a hospital from which they receive free board and lodging will not receive subsistence allowance.

(ii) Dependence allowance will not be paid to students enlisted under this scheme.

(d) *Dress*

Students will wear uniform at all times except when in performance of duties connected with their studies, such as hospital intern duty for which other dress is necessary or as provided in dress regulations.

This decision of the government to enlist as privates all physically fit volunteers from the fifth and sixth and intern years solved completely the financial difficulties of these students and assured the armed forces of a steady supply of medical officers. There remained, however, the students of the second, third, and fourth years who also were in trouble because of the curtailment of the summer holidays. To overcome this difficulty the government, through the Department of Labour, has established a loan fund which is available for all the students in these years who need assistance. The following is an outline of the plan adopted:

STUDENT AID—ONTARIO

1. Financial aid in the form of loans shall be available for the following full-time students of university grade (other than first-year students) registered in a course leading to a degree in a degree-granting university: students in medicine and dentistry who sign a written witnessed agreement that they will enlist in the active Armed Forces when they enter the final years of their course; students in engineering (electrical, mechanical, chemical, civil and metallurgical), science (physics, chemistry, mathematics) who sign a written witnessed agreement that on graduation they will make their services available to the national war effort where needed, (including all branches of the active Armed Forces) in the capacity for which they have been trained.
2. Students shall be selected by a committee or committees in each participating university on the basis of academic merit plus financial need and such selection shall be confined to those who without assistance could not continue their university course.
3. The aid shall take the form of a loan from funds to be supplied direct to each university by the Dominion Department of Labour. These funds shall be administered by a committee or committees in each participating university and the university shall assume responsibility for the subsequent collection of these loans and their repayment to the Dominion Department of Labour.
4. The method of collecting the loans shall conform to the practice normally followed in each university in handling its own loans to students but no interest shall be charged on any loan until the recipient has graduated from or left the university. Furthermore, no loan shall be collected from the heirs or assigns of any student who may be killed or dies on active service.
5. The aid to a student shall be subject to discontinuance at any time for cause at the discretion of the authorities of the university concerned.
6. No form of work shall be required from any student in return for aid under this schedule, other than diligent application to the course of studies for which he or she is enrolled.
7. Aid shall be used for those purposes which shall be most beneficial to the student; such as tuition and other fees, board and lodging, text-books.
8. The amount of the loan shall be graded according to the financial need of each individual, but the average in any university shall not exceed \$300 per student for the academic year.
9. Where a university, in order to increase the output of doctors, accelerates its medical course by shortening the summer vacation period, the Dominion Department of Labour will pay to such university a sum of money to compensate it for the direct additional costs of such an accelerated course. Such payment shall be made each calendar year while this schedule is in operation and the amount of such payment shall be determined by the Department of Labour after consultation by the Dominion Supervisor of Training with each university.
10. Each university shall send to the Dominion Supervisor of Training the following information: name, year and faculty of each student participating in Student Aid; the amount of the loan granted and the purpose for which loan is being used.

With the completion of these negotiations there remained only the women students and those male students who are physically unfit for military service. Fortunately the possible financial difficulties of these students have been solved by a most generous gift of \$10,000 from the Kellogg Foundation which has been set aside as a loan fund for students of these two groups who may be in need of assistance because of the acceleration of the course. This gift will ultimately form the nucleus of a permanent loan fund for medical students who meet financial disaster during their course.

After much consideration it has been decided that a limit of 150 will henceforth be placed on the number of students to be admitted to the first year.

This is somewhat higher than the average for the past ten years but it was felt that during war-time we should temporarily, at least, try to handle this number. In selecting them from the applicants (who usually number several hundred) a committee of selection will take into consideration the following criteria:—

(a) Matriculation record. Applicants from rural districts where facilities are limited, will be given special consideration.

(b) The health and physical condition of the applicant.

(c) Record in a medical aptitude test to be held prior to the date of registration.

(d) The impression of the committee based on a personal interview, if required.

The following chart will indicate what is being accomplished in the present accelerated course.

1941-2	<i>Graduation</i>	<i>Internship</i>	<i>Available for military service</i>	
			Speeded-up course	Regular course
Sixth year	April 30, 1942	May 1, 1942, to Dec. 31, 1942	Jan. 1, 1943	July 1, 1943
Fifth year	Dec. 31, 1942	Jan. 1 to Aug. 31, 1943	Sept. 1, 1943	July 1, 1944
Fourth year	July 30, 1943	Sept. 1 to April 30, 1944	May 1, 1944	July 1, 1945
Third year	April 28, 1944	May 1 to Dec. 31, 1944	Jan. 1, 1945	July 1, 1946
Second year	Dec. 31, 1944	Jan. 1 to Aug. 31, 1945	Sept. 1, 1945	July 1, 1947

As the result of this speeded-up curriculum the year which graduated on April 30, 1942, took the place of the interns in hospitals throughout Canada on May 1, instead of July 1. They were thus made available for military service two months earlier than would ordinarily be the case. The present interns will be available for the armed forces on January 1, 1943, instead of July 1, or six months sooner; the sixth year will be available ten months earlier; the fifth year, fourteen months earlier; the fourth year, eighteen months earlier; and the third year, twenty-two months earlier.

The curricular changes in the courses of each of the years have only been of a minor character, the time-tables in each year consisting of the three terms of the old course to which has been added the first term of the next succeeding year in the fourth term from April to June. The total length of the actual instruction is such that each student receives practically the same sound medical training as in the regular course, but in a shorter period of time.

During the first two years of the war all medical students were required to attend military drills for 110 hours a year. This year, however, the fourth, fifth, and sixth years have been released from this duty and in its place have been required to attend a special course of lectures and demonstrations on war medicine and surgery. This extra-curricular course was given voluntarily by members of the staff. This change was much appreciated by the students who found that, with the acceleration of the course, the time spent on the drill ground interfered seriously with their work.

One of the minor effects of the war has been that it is impossible to buy new microscopes. To overcome this difficulty a pool of microscopes from all the departments and from graduates has been established, and these are issued to the students at a small rental fee.

RESEARCH

Reference to the reports of the individual departments will indicate that in spite of the great depletion of the staff resulting from enlistment there is still a large amount of research work going on. Much of this is directed to the solution of problems that are related to the war and in this regard this University is making a very important contribution. The position occupied by the National Research Council in contact, on one hand with the government and the armed forces and, on the other, with the universities, has made it possible to get expert assistance immediately when unsolved problems arise.

Attention in this regard is drawn particularly to the reports of the Departments of Hygiene and Preventive Medicine and the Departments of Medical Research, Physiology, and Paediatrics.

In Hygiene and Preventive Medicine important bacteriological studies on the infection of wounds with streptococci and staphylococci have been completed by Doctor Hare and a memorandum submitted to the National Research Council which was of basic importance in the preparation of instruction to officers in the medical services.

In the Banting and Best Departments of Medical Research and in the Department of Physiology much work is going on on problems presented by the Royal Canadian Navy and the Royal Canadian Air Force. The naval problems are the immediate responsibility of Professors Best and Solandt who have been appointed to the rank of Lieutenant Commander and Lieutenant, respectively. These officers have conducted their investigations both at sea and on land and have been able to make several important practical contributions. The aviation researches continue under the direction of Professor H. C. Bazett, who has been loaned to the Department of Medical Research by the University of Pennsylvania for this purpose. These naval and aviation researches occupy the time of 30 workers and represent the larger part of the research work going on at the present time.

The report of the Department of Paediatrics indicates many research activities, but particular attention is directed to the completion of the studies on the retention of Vitamin B in white flour. These studies which were conducted in co-operation with the Dominion Departments of Agriculture and National Health are of national importance, as indicated by the recent announcement on "Approved Bread" by the Department of Pensions and National Health.

Attention is drawn, also, to the numerous experimental and clinical investigations that are being conducted at the request of the National Research Council on "shock," "infection of wounds," "burns," and many other clinical problems made important by war. These studies are being conducted by committees composed of members of both clinical and scientific departments.

A year ago a course on Physical and Health Education was organized in this University under the direction of Dr. E. S. Ryerson. This experiment met with such immediate success that it has been decided to establish a School of Physical and Health Education, with its own Council and with a three-year course leading to a degree. This School is not a responsibility of the Faculty of Medicine but the majority of its staff are members of the staff of the Faculty of Medicine. Dr. E. S. Ryerson, Assistant Dean and Secretary of the Faculty of Medicine, has been appointed Professor of Health Education and Director of the new School.

During the past year the University Health Service underwent a reorganization and as a result there will be much more effective supervision of the health of the students. The reorganization was carried out by Major C. D. Gossage who was brought home from the C.A.S.F. on three months' leave of absence for this purpose. New quarters have been established at 43 St. George Street with numerous consulting rooms and the necessary equipment. Here, a staff of physicians under the direction of Dr. R. W. I. Urquhart is on duty during University hours who make a routine examination of each student, noting all physical

defects and tendencies to disease, and providing an emergency service. Students requiring treatment are referred to their family physician. This enlarged Health Service is not a responsibility of the Faculty of Medicine but since it involves the medical students as well as all others and since it is staffed by members of the Faculty, it will be of interest to the graduates.

In the summer of 1941 the Board of Health of Great Britain asked the Canadian Red Cross to send the personnel of a 400 bed orthopaedic unit to work with the Emergency Medical Service in Scotland. This unit was organized here under the direction of Dr. A. B. LeMesurier and is established at Hairmyres, a short distance from Glasgow. It is reported to be very busy.

An interesting event of the year was the conferring of an LL.D. on Surgeon Rear Admiral Gordon Gordon-Taylor, Chief Consulting Surgeon in the Royal Navy. Admiral Gordon-Taylor was the guest of the American College of Surgeons and while here was made an honorary fellow of the American College and of the Royal College of Physicians and Surgeons of Canada. He was a former Balfour Lecturer.

The Balfour Lecturer for 1942 was Dr. Alfred Blalock, Professor of Surgery at Johns Hopkins University. His subject was "Traumatic Shock," on which he has made important experimental and clinical contributions. A very large audience was in attendance.

This year 46 members of the Faculty gave 66 addresses under the auspices of the Ontario Medical Association.

A new item of interest was the awarding of special honours to former students, Dr. A. F. Mahaffy, 1923, and Dr. W. S. Stanbury. Dr. Mahaffy was awarded the rank of Companion of St. Michael and St. George for his outstanding work in the tropics on yellow fever. Dr. Stanbury was awarded the O.B.E. for his work on blood transfusion in England.

Honours conferred on members of the staff this year include the degree of D.Sc. to Professor Best from the University of Chicago. The Dean was made an honorary fellow of the Royal Society of Medicine in England.

Promotions for 1941-2 not mentioned in the report of last year are as follows: Dr. James Campbell to be Assistant Professor in Physiology; Dr. H. M. Macrae and Dr. A. E. MacDonald to be Associates in Ophthalmology; Drs. R. J. A. McComb, C. B. Parker and R. H. Thomas to be Associates in Surgery. These gentlemen will all have seats in the Faculty Council.

This year again has seen the passing of several distinguished and much beloved members of the Faculty. On November 3, Dr. Robert D. Rudolf, C.B.E., F.R.C.P., F.R.C.P.(C), Professor Emeritus in Therapeutics, died at the age of 76 years. Graduates of the years 1896 to 1930 will remember him as a brilliant lecturer and clinical teacher in Medicine. On August 25, 1941, Dr. Geo. M. Biggs, Professor Emeritus in Oto-laryngology, and on July 13, 1942, Dr. W. H. Lowry, Professor Emeritus in Ophthalmology, passed on. These two gentlemen were comparatively young, having retired from their respective chairs only a few months ago. They will be remembered for the share they had in building the Faculty.

W. E. GALLIE

MEDALS, PRIZES, FELLOWSHIPS, SCHOLARSHIPS AND BURSARIES

The Faculty Gold Medals.....	J. G. Mickler and W. Wise (Aeq)
The Ellen Mickle Fellowship.....	W. Wise
The Chappell Prize in Clinical Medicine.....	M. W. Johnston
The William John Hendry Memorial Scholarship in Obstetrics and Gynaecology....	J. W. Rogers
The Ontario Medical Association Prize in Hygiene and Preventive Medicine.....	V. Hertzman
The David Dunlap Memorial Scholarship—Sixth Year.....	J. W. Rogers
—Fifth Year.....	D. W. Best
The Ronald S. Saddington Medal in Pathology.....	H. Goldenberg
The John Copp Bursary.....	H. A. MacMillan
The B'nai B'rith Scholarship.....	A. P. Hayward
The Baptie Scholarship.....	Miss L. M. Craig

REGISTRATION OF STUDENTS IN THE FACULTY OF MEDICINE

SESSION 1942-1943

	<i>Men</i>	<i>Women</i>	<i>Total</i>
First year.....	133	16	149
Second year.....	132	7	139
Third year.....	109	14	123
Fourth year.....	122	5	127
Fifth year.....	100	8	108
Sixth year.....	99	9	108
Diploma in Public Health.....	19	1	20
Diploma in Psychiatry.....	4	0	4
Diploma in Radiology.....	3	0	3
Occasional.....	1	0	1
	722	60	782

ANATOMY

Under the direction of Professor J. C. B. Grant

The shortened session and the shortened summer vacation, which have been adopted as a means towards hastening the production of medical graduates for His Majesty's Forces, have now had a year's trial. That the standard of the work accomplished by the students in this period has not deteriorated is to be attributed largely to their appreciation of the seriousness of their task.

Owing to depletions in the teaching staffs, it was decided that the B. & M. course should fall into abeyance for the duration of the war and, in order to allow the third-year students of this course to enter the third year of Medicine (and thereby to save a year), a six weeks' intensive course of instruction and dissection of the parts of anatomy in which they were deficient was conducted during the summer vacation. Although all the students passed the examination, they did not do so with the high standing usual to B. & M. students, thereby illustrating the fact that intensive courses are not the equivalent of normal courses—there is no substitute for time.

Dr. B. L. Guyatt, who has been a member of the Anatomy staff for twelve years or more, resigned, and accepted a commission with the rank of Major in the Army Medical Corps. It was in no small measure due to Major Guyatt's skill as a dissector and ingenuity as a craftsman that the anatomical museum owes its present form and condition.

Dr. Ross MacKenzie has given his services as Demonstrator of Gross Anatomy and has conducted various tutorial classes weekly and with much acceptance. This assistance was particularly welcome at the present time when, owing to war conditions, the usual compliment of five or six demonstrators is not available.

Mr. H. E. LeMasurier, senior technical assistant in the Department, who is on leave of absence for the duration of the war, was this month promoted to the rank of Lieutenant-Colonel. He is in charge of the purchasing of medical supplies for all Canadian medical units in Britain.

Working in the Department were students of the following classes: Second-year Medicine (138), third-year Medicine (128), second-year Dental (70), occasional (3), School of Nursing (10), Physiotherapy, first-year (45), second-year (36), Occupational Therapy, first-year (49), second-year (59), Margaret Eaton School, seniors (29), third-year Arts (7), School of Optometry (19).

RESEARCHES

Dr. A. W. Ham and Dr. K. Baldwin, in collaboration with Dr. H. Lucas of the Department of Pharmacology, have made an experimental investigation of the toxic action of certain war industry products, and have obtained information with regard to the early detection of their toxic action.

In collaboration with members of the Department of Physiology, histological studies have been made on the tissues of animals in certain types of shock. Some

further tissue studies on diabetic animals have also been made with members of this department.

In collaboration with Dr. Gunther, of the Department of Pharmacology, histological studies have been made on the mammary glands of animals given certain placental hormones under varying conditions.

Dr. Ham, with Miss Salter, of the Department of Psychology, has spent a considerable amount of time in the preparation and completion of a manuscript of a book which it is hoped will serve as a useful guide for medical students.

Dr. C. G. Smith has continued his investigation of the olfactory apparatus. He finds that in man olfactory nerve fibres atrophy, on an average, at the rate of one per cent per annum; that is to say, at the age of 25 years, 25 per cent of olfactory nerve fibres are lost; at the age of 50 years, 50 per cent; and at the age of 75 years, 75 per cent.

PUBLICATIONS

GEORGE, R. K. "When we were very young" (*Journal of the Canadian Physiotherapy Association*, vol. 1, 1941, pp. 11-13).

GRANT, J. C. B. Section on "The musculature" (in *Text-book of human anatomy* by Morris, Philadelphia, Blakiston, 1942).

HAM, A. W. "Canada is facing a shortage of doctors" (*Saturday Night*, Aug. 30, 1942, p. 10).

———— and BALDWIN, K. W. "A histological study of the development of the lung with particular reference to the nature of alveoli" (*Anatomical Record*, vol. 81, 1941, pp. 363-75).

———— and HAIST, R. E. "Histological study of trophic effects of diabetogenic anterior pituitary extracts and their relation to the pathogenesis of diabetes" (*American Journal of Pathology*, vol. 17, 1941, pp. 787-812).

McMURRICH, K. I. "Muscle training in nerve injuries of the upper extremity" (*Journal of the Canadian Physiotherapy Association*, vol. 1, 1941, pp. 7-9).

SMITH, C. G. "Age incidence of loss of olfactory nerve-fibers in man" (*Anatomical Record*, vol. 82, 1942, p. 86).

———— "Incidence of atrophy of the olfactory nerves in man" (*Archives of Otolaryngology*, vol. 34, 1941, pp. 533-9).

BIOCHEMISTRY

Under the direction of Professor Hardolph Wasteney

I have the honour to submit the following report on the work of the Department of Biochemistry for the year 1941-2.

In August of 1941 Dr. B. F. Crocker left the Department to join the R.C.A.F. His departure, together with curriculum changes necessitated by the war, made it necessary to rearrange some of the teaching duties of the staff. Mr. J. A. McCarter, M.A., a graduate of the University of British Columbia, was appointed to carry on Dr. Crocker's work with medical students.

The B. and M. course having been suspended for the duration of the war, the special course of lectures usually given by Professor Young to the students of the third year of that course together with students of the third year in Biology, and Physiology and Biochemistry, was also suspended. The students of the last two courses attended Professor Wynne's lectures on General Biochemistry, delivered to students in the third year of the Household Economics, Household Science, Chemistry, and General courses. One student of the course in Biology and Physics who would otherwise have attended this course was unable to do so and was given a special tutorial course by Professor Wasteney.

The lecture and laboratory course formerly given by Dr. Crocker to third-year dental students was given by Professor Young who was assisted in the laboratory part of the course by Mr. McCarter.

Professor Wasteney conducted the lecture and laboratory courses in Biochemistry given to second- and third-year medical students and gave the lectures

in the second part of the course in the History of Science and Civilization to first-year medical students. Owing to time-table difficulties the students in Dentistry were unable to take these lectures as they have done in former years.

Professors Wynne and Young delivered the course of lectures in advanced Biochemistry for students of the fourth year in the Physiology and Biochemistry course and graduate students. Professor Young conducted an advanced laboratory course for these students and a special laboratory course in Applied Biochemistry for the fourth-year P. & B. students, and Professor Wynne conducted a lecture and laboratory course in Zymology for graduate students.

One result of the rearrangement of the curriculum, necessitated by the shortening of the medical course, has been that Biochemistry is taken throughout only one trimester of the second year. Only 30 lectures and 10 laboratory periods can be given in this trimester. It is inappropriate, therefore, to hold a final examination at the end of the nominal second year. Only one final examination in Biochemistry, covering the whole course, will accordingly be given, viz. at the end of the nominal third year in December. Term examinations will, of course, be given throughout the whole course.

Two students from the Department completed the requirements for the M.A. degree and two for the Ph.D., and these degrees were conferred at the spring convocation.

The total number of students registered in the Department during the session 1941-2 was 413. This number was made up of 261 medical students, 13 students of the General course, 6 P. & B., 5 Biology, 1 B. & P., 33 Household Economics, 25 Household Science, 48 Dentistry, 1 Occasional, and 20 graduates. Of the graduate students 9 were candidates for the Ph.D., 5 for the M.A., 1 for the M.S.A., and 1 for the M.A.Sc. Five were taking Biochemistry as a minor for degrees in other departments, and 8 were taking their major work in Biochemistry.

RESEARCHES

Dr. J. Manery Fisher, with the assistance of Dr. E. Randell, has continued research on experimental shock in dogs collaborating with Dr. R. Haist and Miss J. F. Hamilton of the Department of Physiology. Particular attention has been paid to the water and electrolyte (sodium, potassium, and chloride) changes in blood and tissues in this condition.

In collaboration with Dr. K. C. Fisher of the Department of Zoology, further observations were made on the effects of salts on the water intake and "hardening" which occurs when fish eggs in continuously flowing citrated water entirely inhibited "hardening" for several days.

Under the direction of Professor A. M. Wynne

Miss Elizabeth A. Macpherson has continued the investigation of the properties and formation of the intestinal phosphatase of rats. The results of her studies were incorporated in a thesis for the Ph.D. degree.

Mr. Chao-wen Shen, Sino-British Fund Fellow, has examined the influence of several factors on the formation of phosphatase in yeast during its growth in synthetic media. He has also studied the influence of these and other factors on the activity of the enzyme *in vitro*.

Dr. Jules Tuba continued his investigations of yeast phosphatase. In May, 1942, he left the University to join the staff of the University of Alberta as lecturer in Biochemistry.

Under the direction of Professor L. Young

Mr. A. D. Barton has synthesized a number of monoaryl sulphates and has prepared their p-toluidine derivatives. He has established the value of p-toluidine as an agent for the characterization of monoaryl sulphates and has developed a simple procedure for the determination of the equivalent weights of the organic base salts of monoaryl sulphates.

Dr. L. H. Chang, Sino-British Fund Fellow, has continued his investigation of the absorption and metabolism of various carcinogenic and non-carcinogenic polycyclic hydrocarbons. He has shown that no parallelism exists between carcinogenic activity and the extent to which polycyclic hydrocarbons are absorbed. Dr. Chang has studied the urinary excretion of acid-decomposable hydrocarbon precursors and certain oxidation products of the polycyclic hydrocarbons.

Hitherto no general method has been available for the isolation of monoaryl sulphates from urine. Mr. D. H. Laughland has now developed such a method and has applied it successfully to the isolation of phenyl sulphate from the urine of animals dosed with phenol.

Mr. S. H. Zbarsky, under a grant from the Banting Research Foundation, has continued his study of the synthesis of S-substituted cysteine derivatives and mercapturic acids. He has synthesized a number of such compounds and has demonstrated the conversion of certain substituted cysteine derivatives to mercapturic acids in the animal body.

Dr. Leslie Young, assisted by Dr. B. F. Crocker, Mr. J. A. McCarter, Mr. M. Edson, and Miss G. E. Brackenbury, has been engaged in war research.

PUBLICATIONS

MANERY, J. F. and BALE, W. F. "The penetration of radioactive sodium and phosphorus into the extra- and intra-cellular phases of tissues" (*American Journal of Physiology*, vol. 132, 1941, p. 215).

————— and HAEGE, L. F. "The extent to which radioactive chloride penetrates tissues and its significance" (*American Journal of Physiology*, vol. 134, 1941, p. 83).

WASTENEYS, H. "Digestion in the mammalian alimentary tract" (*Transactions of the Royal Society of Canada*, vol. 35, 1941, sect. V, pp. 1-15).

————— CROCKER, B. F., and HAMILTON, P. "Studies of digestion in the dog" (*American Journal of Physiology*, vol. 135, 1941, pp. 6-19).

YOUNG, L. "The metabolism of chemo-therapeutic agents of the sulphonamide group" (*University of Toronto Medical Journal*, vol. 19, 1941, pp. 45-9).

HISTORY OF MEDICINE

Under the direction of Professor Jabez H. Elliott

The course of lectures as prescribed in the Calendar was given to the three senior years, each year having its own course.

The course to the graduating year outlined the history of military medicine and surgery.

At the request of the President I assisted the launching of the Poppy Fund Campaign with an address on John McCrae.

In March, I gave by invitation the address in History of Medicine before the American College of Physicians meeting in St. Paul, Minn., choosing as the subject, "The Mediaeval Physician."

In May, I accepted the invitation of the National Tuberculosis Association to address the annual meeting in Philadelphia on "The Problem of Tuberculosis before the Discovery of the Tubercle Bacillus" and was also an invited speaker at the fiftieth anniversary meeting of the Pennsylvania Tuberculosis Society.

I presided at the three-day session of the American Association of the History of Medicine at Atlantic City, May 3-5, and have been continued as President for another year.

HYGIENE AND PREVENTIVE MEDICINE

(Including the Sub-Department of Chemistry in Relation to Hygiene)

Under the direction of Professor D. T. Fraser

The enrolment of graduate students in the course for the diploma in Public Health for the session 1941-2 numbered twenty-four as compared with twenty-seven last year, the highest enrolment since the inauguration of the course. The following provinces were represented: Alberta, Manitoba, Ontario, and Quebec. One student was from China and one from the British West Indies. Eight students were Rockefeller Foundation Fellows and two were Connaught Laboratories Fellows. Including the students of this year the total number enrolled since 1911 is 252.

As previously, courses of instruction in Bacteriology, Immunology, and Medical Protozoology were given to these students in the course leading to the diploma in Public Health and also to suitably qualified graduate students. At the present time there is urgent need for men in preventive medicine and public health in Canada, both for civilian duties and with the armed forces. Of the classes graduating from the University of Toronto with the diploma in Public Health, in the last ten years, twenty have joined the armed forces.

Through the absence on war service of Lieut.-Col. W. H. Brown, Major D. L. MacLean, Squadron Leader J. M. Mather, and Major E. L. Davey, it has proved impractical to continue the teaching of the class of fifth-year medical students in small groups under the tutorial system formerly employed. The formal lecture system has again been resumed. This temporary arrangement is accepted with regret since our experience has confirmed our opinion that teaching is more effective in tutorial groups.

During the session the field course was held twice, in April and June, owing to the action of the Faculty in accelerating the time of graduation of medical students to meet the emergencies of war. It is a pleasure to acknowledge the full co-operation of the Department of Health of Ontario and of the Department of Public Health, Toronto, in allowing the members of their staff to assume this added burden.

Laboratory courses and lectures were given as usual to the students in the second year in Pharmacy, second and third year Household Science and Household Economics, and to students in the School of Nursing.

The enrolment for the session has been as follows:

Candidates for the diploma in Public Health.....	24
Graduate students.....	9
Faculty of Medicine, fifth year.....	107
Faculty of Household Science, second and third years.....	28
Faculty of Arts, second, third, and fourth years.....	98
Ontario College of Pharmacy, second year.....	78
School of Nursing.....	74
	418

RESEARCHES

Under grant of the National Research Council Dr. Hare, assisted by Dr. R. E. Willits and, on her departure, by Miss E. M. Clark, completed his studies on the aetiology of streptococcal infection of wounds, begun at the outbreak of the war and mentioned in the report of last year. These studies have now been published. It was shown that recently inflicted wounds do not have pathogenic strains of streptococci in them, but these microorganisms may reach the wound after infliction from a variety of sources of which the nasopharynx of the attendant or infections in a fellow patient in the same ward are the most important. Somewhat similar conclusions were reached in regard to the staphylococci. The work has been extended, along with the assistance of Dr. C. Sivertz of the Uni-

versity of Western Ontario, to the problem of finding a method of delaying the absorption of sulphonamides from wounds, thus prolonging the time of protection afforded. The results of this study have been submitted to the National Research Council. Dr. Hare and Miss Macmorine have worked out a method of reclaiming agar, the supply of which will be scant on account of the war.

Dr. Hare and Dr. Laurella McClelland have continued their studies on influenza viruses. The important observation was made that the red blood cells of the developing chick embryo, when free in the allantoic fluid, agglutinated in the presence of influenza A or B infection of the hen's egg. Practical application has been made of this phenomenon in the titration of the influenza virus and also in its concentration in the process of making a vaccine. Other studies on the isolation of virus from respiratory infection with the co-operation of Majors Hurst Brown and John Hamilton, have been pursued. Dr. Hare has also assisted Dr. H. C. Bazett and Wing Commander Sifton on the effect of ultra-violet radiation on the incidence of respiratory infection.

Dr. Frieda Fraser has continued her work in the field of haemolytic streptococci. Cultures from 650 persons have been examined, yielding 220 group A strains, 98 per cent of which have been classified in 17 serological types. The incidence of particular types in various groups of persons is of important epidemiological interest and has been studied in relation to scarlet fever in the R.C.A.F. One particular agglutinative type has been associated, practically to the exclusion of all others, with scarlet fever in the Air Force, for over two years. Observations on carriers were made. Convalescents yielded positive cultures, of the original type harboured, up to 5 months from the onset of illness. The finding of prolonged survival of pathogenic strains on dried swabs and culture media may repay further investigation in relation to the transmission of infection. The results on the immunizing value of the intradermal use of tannic acid precipitated scarlet fever toxin carried on with the co-operation of Dr. L. A. Clarke, Department of Health, Hamilton, were encouraging.

Dr. Wishart has made a comparison of the antitoxin response to diphtheria toxoid given intradermally and subcutaneously in human volunteers. He is pursuing certain serological problems in typhus fever.

Dr. Helen Plummer has explored certain of the factors concerned with the production of potent botulinus toxin and of toxoid. She has also followed the response in persons of the armed forces to tetanus toxoid, particularly following the annual recall dose. The response is rapid and of a high order, 93 per cent had 1/10 of a unit of tetanus antitoxin or greater within 10-14 days after the recall dose, whereas only 28 per cent were at this level before the injection.

With the increase in the number of cases of diphtheria in Toronto the previous studies carried on by Dr. Donald Fraser in collaboration with Dr. A. B. Moffat of the Department of Health, Toronto, on carriers, conducted during the last 8 years have formed an interesting basis of comparison. Of 3,400 cultures from the school-children in 1942, 0.56 per cent showed the presence of virulent diphtheria bacilli, which is somewhat greater than ten times the rate in previous years, when diphtheria was not prevalent. No carriers were found in a total of 8,000 children examined in the years 1938-41 inclusive. Dr. Donald Fraser and Miss K. Halpern, in collaboration with Dr. Beverley Hannah of the Riverdale Isolation Hospital, examined the cultures from 80 cases and carriers, for type. The gravis and intermediate types were approximately numerically equal; only two cultures were of the mitis. In previous years, with the exception of 1940 and 1941, mitis type was overwhelmingly predominant.

Surgeon Lieut. R. J. Wilson has investigated the laboratory aspect of staphylococcus food poisoning epidemic in an outbreak of staphylococcus skin infection in young infants.

Dr. Moloney has completed a method of purification of tetanus toxoid. The purified material has proved of very practical value in the *in vitro* testing of

tetanus antitoxin. This has resulted in the saving of many laboratory animals. The flocculation test for tetanus products has been further explored. A useful flocculating serum has been evolved.

Dr. Edith Taylor has achieved outstanding success in exploring the factors concerned in the development of diphtheria toxin of high potency.

Dr. E. Kuitunen-Ekbaum has become a member of the staff of the School of Hygiene, and although no longer a member of this department, her valuable assistance will be available in the teaching of parasitology. She has continued her work, initiated in the Department of Hygiene and Preventive Medicine, on enterobius, trichomonas vaginalis, and trichonosis infection.

PUBLICATIONS

FRASER, D. T. "Le contrôle des maladies infectieuses" (*Canadian Public Health Association*, 30th Annual Meeting, Quebec, 1941).

HARE, R. and WILLITS, R. E. "The bacteriology of recently inflicted wounds with special reference to the haemolytic streptococci and staphylococci" (*Canadian Medical Association Journal*, vol. 46, 1942, pp. 23-30).

KUITUNEN-EKBAUM, E. "Diagnosis of enterobiasis" (*Canadian Public Health Journal*, vol. 33, 1942, pp. 174-6).

"Incidence of trichinosis in humans in Toronto" (*Canadian Public Health Journal*, vol. 32, 1941, pp. 569-73).

MOLONEY, P. J. and HENNESSY, J. N. "Analysis of tetanus toxoid-antitoxin floccules" (*Canadian Public Health Journal*, vol. 33, 1942).

ROBERTS, J., DEADMAN, W. J., ELLIOTT, F. G., and WILSON, R. J. "Epidemiology of staphylococci food poisoning in three outbreaks in Hamilton (Ont.), Canada" (*Proceedings of the Sixth Pacific Science Congress*, vol. 5, 1939, pp. 369-76).

WILSON, R. J. "Hospital wound infection in war casualties" (*University of Toronto Medical Journal*, vol. 19, 1941).

MEDICAL JURISPRUDENCE

Under the direction of Dr. K. G. Gray and Professor W. L. Robinson

Owing to the telescoping of the medical course we have been obliged in this Department to repeat our lectures in Medical Jurisprudence twice in the one year.

We have been without the assistance of Dr. K. G. Gray who gave the lectures on the legal aspects of this subject and who, at present, is on duty overseas with the Canadian Army. To compensate for the loss of these lectures Mr. Cecil Snyder, Deputy Attorney-General, and Professor F. C. Auld of the Department of Jurisprudence of the University of Toronto, have both very ably come to our assistance and given a course of lectures touching on the criminal and civil aspects of Medical Jurisprudence. We are also now ably supported in this Department by the appointment of Dr. Smirle Lawson, Supervising Coroner for the Province of Ontario who, at present, carries some of the lectures on the pathological aspects of this subject. He also has arranged for members of this class to attend inquests at the Coroner's Building where he gives them instructions in the procedures of the Coroner's Court.

The course has been very much appreciated by the students and we feel that there is a distinct desire on their part for more lectures on both the pathology and legal aspects of the course. We think that a further extension of this course in the way of more teaching hours might profitably be considered.

MEDICINE

Under the direction of Professor Duncan Graham

During the past year it has been possible, despite the depletion of staff on account of the war, to carry out the regular programme of undergraduate instruction in Medicine laying special stress on medical problems related to the war.

Staff

Dr. A. A. Fletcher, Associate in Medicine, is still on sick leave, but the Department is pleased to report that he is making a progressive though slow recovery from his illness.

The Department regrets to report that Major Rykert has been invalided home from overseas and has been forced through illness to accept a discharge from the Army after two and a half years of service. Before returning from overseas Major Rykert was rendering valuable service as Officer-in-Charge of the Officers' Ward and Specialist in Cardiology at No. 15 Canadian General Hospital. It is expected that his health will permit him to resume his teaching and hospital duties in the coming academic year.

Eleven members of the active teaching staff and six former Fellows in Medicine are now on active service. Recent enlistments include: Dr. J. W. Graham (Navy), Dr. A. H. Squires (R.C.A.M.C.), Dr. K. J. R. Wightman (R.C.A.M.C.) and Dr. Wright Young, a Voluntary Assistant on the staff of the Medical Out-Patient Department of the Toronto General Hospital (R.C.A.M.C.). In addition, all male Senior Internes in Medicine appointed to the Toronto General Hospital since the outbreak of war have enlisted. In the past year, Drs. Hyland, Dickson, Hurst Brown, and Kerr have been Officers-in-Charge of Medicine, and Drs. Ian Macdonald, Dauphinee, and Richardson 2nd-in-Charge of Medicine in their respective units.

RESEARCHES

For several years Drs. Campbell and Dauphinee, with the assistance of Miss Hanna, have been investigating the effect of disease on the serum-protein pattern. They have shown that a new protein, foreign to normal bloods, appears in the blood stream in infection and in various chronic diseases. The detection of this protein has proved of value in the diagnosis of certain conditions. The behaviour of this protein, a short method for its detection, and its relationship to other phenomena of disease were discussed at a recent meeting of the Association of American Physicians. A report of the work will be published shortly.

An investigation of methods for the detection of urobilin has led to the development of a more sensitive and reliable method for use in the study of liver and blood disorders.

In a rare condition known as Gaucher's disease, a fatty substance accumulates in the spleen, bone marrow, and other organs. This substance has been believed to be kersin, a normal constituent of the brain, until last year when Deuel showed in a Gaucher's spleen examined by him that the carbohydrate fraction of this fatty substance differed from kersin in that it contained glucose instead of galactose. Examination of the spleen from a case of Gaucher's disease by Dr. Campbell has confirmed Deuel's contention. This new finding alters our conception of the disease.

It has been known for a number of years that indoxyl compounds accumulate in the blood stream in uraemia, but little attention has been paid to this occurrence or its meaning, largely because of difficulties in their determination. Dr. Campbell has developed a new method for the detection of indoxyl compounds which is suitable for clinical use, and has isolated the substances responsible for the reaction from this test. As the test is roughly quantitative, it is now being used to study the relationship between the amount of indoxyl compound and the symptoms present in different cases of uraemia.

In connection with work on "Shock," Dr. Cleghorn, in association with Dr. Bonnycastle of the Department of Physiology, has made blood volume determinations on 100 normal dogs.

The results of chemical analysis of tissues in shock and in adrenal insufficiency, obtained by Mr. A. P. W. Clarke, Research Fellow in Medicine, showed that greatly different chemical changes in the tissues may be associated with an increase of potassium in the blood. The degree of this increase was not high enough to be lethal in itself. An increase in potassium is considered to be a contributing factor but not a cause of death from shock.

In a previous report, results in the treatment of patients suffering from Addison's disease with desoxycorticosterone acetate—a synthetic adrenal cortical hormone—were reported and the potency of this preparation compared with that of an aqueous extract of the adrenal cortex. Acetoxypregnenolone is the immediate precursor of desoxycorticosterone acetate in the synthetic production of the adrenal cortical hormone. In the past year an assay of acetoxypregnenolone has been conducted for cortin-like activities on adrenal-ectomized dogs. Careful test showed it to be less than one-fifth as active as desoxycorticosterone acetate, which indicates that it would not be an economical substitute.

Simultaneous plasma protein and plasma volume estimations were made in adrenalectomized dogs by Dr. Cleghorn and Miss Hanna in collaboration with Dr. J. K. W. Ferguson of the Department of Pharmacology. It was found that the concentration of plasma protein in adrenal insufficiency is much less than would be expected from the measured decrease in plasma volume. This is considered definite evidence of loculation or stasis of a large quantity of plasma in adrenal insufficiency, a condition previously suspected but difficult to demonstrate.

A study of the therapeutic and toxic effects of sulphadiazine has been made by Dr. K. J. R. Wightman, Fellow in Medicine. A report will be published shortly.

Dr. Wightman, in association with Dr. Greey, Bacteriologist to the Toronto General Hospital, has investigated the effect of sulphaguanidine in three typhoid carriers. The investigation showed that sulphaguanidine treatment does not affect the typhoid carrier state when foci of bacilli are present in the biliary system, but may be effective in cases in which removal of foci of bacilli by operation has failed to cure the condition.

Dr. Walters has reviewed the clinical findings in all cases of Parkinsonism admitted to the Toronto General Hospital over the two-year period 1940-1. A report of this study is in preparation for publication.

PUBLICATIONS

- BATES, G. "Is venereal disease a moral issue?" (*Health*, vol. 9, 1941, pp. 54-5).
——— "Venereal disease control" (*Canadian Public Health Journal*, vol. 32, 1941, pp. 339-49).
CAMPBELL, W. R. "Chronic glomerulonephritis" (*Bulletin of the Academy of Medicine*, Toronto, vol. 15, 1941, pp. 7-15).
CLEGHORN, R. A., FOWLER, J. L. A., WENZEL, J. S., and CLARKE, A. P. W. "The desoxycorticosterone acetate requirement of the adrenalectomized dog" (*Endocrinology*, vol. 29, 1941, pp. 535-44).
DETWEILER, H. K., MACKAY, A., and WILLINSKY, A. I. "Sulfathiazole anuria with recovery" (*Canadian Medical Association Journal*, vol. 45, 1941, p. 242).
ELLIOTT, J. H. "A. H. W. Caulfeild, M. B., F.R.C.P. (C)" (*Transactions of the American Clinical and Climatological Association*, vol. 56, 1941, pp. 56-7).
FARQUHARSON, R. F. "Anorexia nervosa" (*Illinois Medical Journal*, vol. 80, 1941, pp. 193-200).
——— "Recurring or persistent giant urticaria (angioneurotic oedema)" (*Illinois Medical Journal*, vol. 80, 1941, pp. 454-7).

- FARQUHARSON, R. F. and SQUIRES, A. H. "Inhibition of the secretion of the thyroid gland by continued ingestion of thyroid substance" (*Transactions of the Association of American Physiology*, vol. 56, 1941, pp. 87-97).
- GRAHAM, D. "The place of the Canadian Medical Association in our national life: Valedictory address of the president" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 177-80).
- McPHERDAN, J. H. "Cardiovascular changes in toxic goitre" (*Canadian Medical Association Journal*, vol. 46, 1942, pp. 471-4).
- "The path of medicine" (*Ontario Medical Association Bulletin*, vol. 8, 1941, pp. 145-55).
- McPHERDAN, W. F. "Haemochromatosis" (*Tice's Practice of Medicine*, vol. 9, 1942, pp. 57-63).
- OGDEN, W. "The ideal restul in pulmonary tuberculosis (30 cases of complete resolution)" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 1-7).
- OILLE, J. A. "Cardiac neuroses" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 1-7).
- PRENDERGAST, D. J. "Psittacosis" (*Bulletin of the Academy of Medicine*, Toronto, vol. 15, 1942, pp. 94-6).
- WRONG, N. M. "Facts and fallacies about the skin" (*Health*, vol. 10, 1942, pp. 28-9).

OBSTETRICS AND GYNAECOLOGY

Under the direction of Professor W. A. Scott

The teaching of Obstetrics and Gynaecology, and the routine work of the Department have continued unchanged, in spite of the war. The change in the curriculum due to the speeding up of the course, has not resulted in any essential change in its content, but has materially increased the work of the individual members of the staff, leaving little time for anything except routine work. There have, however, been published eight papers by various members of the staff, a list of which has been sent to you.

PUBLICATIONS

- COSBIE, W. G. "Complications of irradiation treatment of carcinoma of the cervix" (*American Journal of Obstetrics and Gynaecology*, vol. 41, 1941, pp. 1003-8).
- "Pitfalls in gynaecological diagnosis" (*Canadian Medical Association Journal*, vol. 44, 1941, pp. 133-6).
- FRAWLEY, D'A. "Toxaemias of pregnancy" (*Bulletin of the Academy of Medicine*, Toronto, May, 1942, pp. 165-9).
- GOODWIN, J. C. "The treatment of trichomonas vaginalis infection" (*University of Toronto Medical Journal*, vol. 19, 1941, pp. 94-101).
- HENDERSON, D. N. "The incidence of endometrial hyperplasia with uterine fibroids and external and internal endometriosis (adenomyosis)" (*American Journal of Obstetrics and Gynaecology*, vol. 41, 1941, pp. 694-7).
- JOHNSTON, H. W. "An improved radical technique for carcinoma of the external genitalia in the female" (*Canadian Medical Association Journal*, March, 1942, pp. 230-3).
- "Removal of the regional lymph nodes in carcinoma of the body of the uterus" (*Surgery, Gynaecology and Obstetrics*, May, 1942, pp. 1002-4).
- LOW, D. M. "Caesarean section" (*Canadian Medical Association Journal*, vol. 44, 1941, pp. 280-4).

OPHTHALMOLOGY

Under the direction of Professor W. W. Wright

A number of changes have been made in undergraduate teaching to the fifth and sixth years that are perhaps worth mention. The lecturers and clinicians in the Department felt that the students were not devoting sufficient attention to Ophthalmology largely because there was no serious examination at the end of the course. As it was not desirable to add to the number of final examinations, a scheme of grading the students has been developed, based partly

on a short written examination at the end of each trimester in the fifth year, partly on interest shown and attention at clinics, and partly on an oral examination at the end of the sixth year. The lectures and demonstrations to the fifth year have been divided between six members of the staff, each specializing on one or more branches of the subject. A photographic department has been started with Dr. Lloyd Morgan in charge. A very excellent collection of coloured photographs of external diseases of the eye is being accumulated, which have already added considerably to the interest in lectures. During the year the experiment was tried of changing the teaching clinics in the sixth year from the out-patient department to the wards. To date both clinicians and students feel that this is a definite improvement, and the policy will probably be continued although under present conditions it necessitates the giving of more time on the part of the staff.

The work in the special eye pathological laboratory under Dr. Harold Hodgson has gone on steadily throughout the year. In this connection the Department wishes to emphasize that the services of the laboratory are available to the profession of the province in general. We will be pleased to receive, examine, and report on any eye specimens addressed to the Department of Ophthalmology, Banting Institute.

As it was felt that the Department should be able to develop ophthalmic specialists for the province, a scheme has been initiated where, by combining the interne facilities of the eye services of the Toronto General and Sick Childrens' hospitals, an adequate post-graduate course will be given with special instruction by members of the staff, and a supervised course of study. Owing to the war young men are unfortunately not available but we are making a start with one man this year.

PUBLICATIONS

MACDONALD, A. E. "Ocular kinetic righting reflexes" (*Transactions of the American Ophthalmological Society*, vol. 39, 1941, p. 214).

—————"Post-graduate course in aviation medicine, including aviation ophthalmology" (*Kinetic stereoscopy*, Washington, D.C., George Washington University, 1941).

MORGAN, L. "Surgical treatment of strabismus" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 500-4).

OTO-LARYNGOLOGY

Under the direction of Professor A. A. Campbell

The heavy drain on our staff due to military duties and the speeding up of the medical course continues. The Toronto General Hospital staff is particularly short-handed. Of eight members, three are on full-time duty overseas and two on part-time duty in Canada. However, Dr. G. A. Fee has been a welcome addition to our staff. In spite of the strain, the clinical and didactic teaching in Oto-Laryngology has been carried on as in former years. Lantern slides, especially coloured slides, have been used increasingly in lectures and demonstrations.

PUBLICATIONS

CAMPBELL, A. A. "Ear injuries" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 152-5).

WISHART, D. E. S. "Rhinology in children" (*The Laryngoscope*, vol. 51, 1941, pp. 739-72).

PAEDIATRICS

Under the direction of Professor Alan Brown

Great interest has been evinced in medical and public health circles not only in Canada but also in the United States and Great Britain in our study of the

effect of proper diet on the health of the pregnant woman and her offspring. This study has been carried out in co-operation with the Department of Obstetrics, University of Toronto, the Dietetic Department of the Toronto General Hospital, and the Visiting Homemakers' Association of Toronto. From the observations, most gratifying results were obtained in bettering the health of the pregnant woman in poor circumstances and that of her infant by the addition of simple food substances to the diet during pregnancy. Large-scale observations similar to those carried out in Toronto are now under way in both Great Britain and the United States.

In co-operation with the Connaught Laboratories, studies on the toxin of B. Pertussis and on the protective effect of Pertussis vaccines and sera are being carried out. Work is in progress on the influenza bacillus, type B.H., the strain responsible for B. influenzal meningitis, as regards incidence, growth, typing, and, in treatment, the effect of anti-serum and various chemotherapeutic agents.

In co-operation with the Department of Horticulture of the Ontario Agricultural College at Guelph, studies are continuing on the vitamin C, ascorbic acid content of Ontario grown fruits and vegetables. Through the Ontario Department of Agriculture a conference was held last year with representatives of the canning companies producing canned tomatoes and tomato juices. The average ascorbic acid content of tomato juices canned in Canada subsequent to this conference has shown a gratifying increase. Differences in ascorbic acid content in different strains of fruits and vegetables have been shown. Attempts are under way to breed high vitamin C containing varieties. The rapid loss of vitamin C in green leafy vegetables during ordinary storage in retail stores has been demonstrated.

A comparison has been made of chemical and microbiochemical methods for the estimation of riboflavin. Using new extraction methods, including the use of digestive ferments which set free the combined riboflavin, good agreement has been found between the two methods of determination. A variety of foods, including cereals, vegetables, and cheese, has been assayed for their riboflavin content. Studies are being carried out on the effect in the rat of experimentally produced riboflavin deficiency. In the human, the incidence of riboflavin deficiency as determined by examination of the eye by means of the slit lamp and saturation tests is being determined. The increased need for ascorbic acid and riboflavin during acute illnesses is being studied by saturation observations. An investigation of methods for determination of the nicotinic acid content of food-stuffs is in progress.

In co-operation with the Dominion Departments of Agriculture and of National Health, studies have continued on the vitamin B complex content of Canadian wheats and the retention of this group of vitamins in white flour by various new milling procedures. The fruition of these experiments is the announcement by the Canadian Department of Pensions and National Health of "Canada Approved White Flour" and "Canada Approved White Bread."

Further observations on possible means for the prevention of cross infection in hospital wards have been made. The division of a ward into cubicles by partitions running up from the floor for a distance of 7 feet, the height of the ceiling being 10 feet, was found to be as effective in protecting the infants as were partitions extending from the floor to the ceiling. The placing of ultraviolet light barriers across the entrance to the cubicles with the complete partitions reduced the incidence of infection in this type of cubicle by 50 per cent. This type of cubicle equipped with ultraviolet barriers at the entrance would therefore appear to be very effective in the prevention of cross infections. Ultraviolet lights suspended from the ceiling and reflected upwards were installed in one of the wards reserved for the care of premature infants. In comparison with a similar ward not equipped with ultraviolet lamps, the use of these lights decreased the

incidence of cross infection by one-half. As a result of this observation it is proposed to install similar ultraviolet lights in all the premature rooms.

It will be seen from this report that attention has been directed not only to problems of interest to the Department of Paediatrics but also to problems of national importance. This department is officially co-operating with no less than five government departments at Ottawa, as well as the Department of Agriculture of the Province of Ontario.

PUBLICATIONS

DRAKE, T. G. H. "Antique pewter articles of medical interest" (*Bulletin of Historical Medicine*, vol. 10, 1941, p. 272).

—————"The human requirements and Canadian sources of vitamins" (*Bulletin of the Academy of Medicine*, Toronto, vol. 15, 1942, p. 129).

EBBS, J. H. and MOYLE, W. J. "The importance of nutrition in the prenatal clinic" (*Journal of the American Dietetic Association*, vol. 18, 1942, p. 12).

—————TISDALL, F. F., and SCOTT, W. A. "Influence of prenatal diet on the mother and child" (*Journal of Nutrition*, vol. 22, 1941, p. 515).

—————BROWN, A., TISDALL, F. F., MOYLE, W. J., and BELL, M. "The influence of improved prenatal nutrition upon the infant" (*Canadian Medical Association Journal*, vol. 46, 1942, p. 6).

—————SCOTT, W. A., TISDALL, F. F., MOYLE, W. J., and BELL, M. "Nutrition in pregnancy" (*Canadian Medical Association Journal*, vol. 46, 1942, p. 1).

HAWKE, W. A. "Further observations upon the treatment of convulsions by dilantin sodium" (*Canadian Medical Association Journal*, vol. 45, 1941, p. 234).

JACKSON, S. H. and WHITESIDE, A. G. O. "The thiamin in wheat and flour" (*Scientific Agriculture*, vol. 22, 1942, p. 6).

KEITH, J. D. "The prognosis in rheumatic heart disease" (*Canadian Medical Association Journal*, vol. 45, 1941, p. 119).

SILVERTHORNE, N. and CAMERON, C. "Studies on meningococcus infection" (*Journal of Paediatrics*, vol. 19, 1941, p. 618).

—————BROWN, A., and CAMERON, C. "Whooping cough," parts I-IV (*Journal of Paediatrics*, vol. 20, 1942, p. 1).

—————HAWKE, W. A., and BROWN, A. "Convalescent serum in the treatment of poliomyelitis" (*Canadian Public Health Journal*, vol. 32, 1941, p. 410).

TISDALL, F. F. "Two years' experience in a nutrition program for national defense" (*American Journal of Public Health*, vol. 31, 1941, p. 1289).

—————JACKSON, S. H., DRAKE, T. G. H., NEWMAN, L. H., WHITESIDE, A. G. O., MILLER, H., and EDGAR, J. "Retention of wheat vitamins in flour" (*Canadian Medical Association Journal*, vol. 45, 1941, p. 101).

PATHOLOGICAL CHEMISTRY

Under the direction of Professor Andrew Hunter

In common with the other departments in the Faculty of Medicine, the Department of Pathological Chemistry has had its teaching session lengthened from eight months to ten. Although during most of this period the staff was below its normal strength, the courses, both of the fourth and of the fifth year, were carried on without curtailment. Fortunately the strain was somewhat relieved in May and June by the return of Dr. R. W. I. Urquhart from military service to his position as Lecturer. It is hoped that Dr. Urquhart's other duties will permit him to continue his services to the Department in the future.

The teaching of urinary analysis to students who do not yet appreciate its clinical importance or application has always presented certain difficulties. In a continued effort to overcome these difficulties the Department has instituted certain changes in the order of presentation of the subject. These changes went

into effect with the fourth-year class, which entered the laboratory in April. Whether because of them, or possibly because of the shortness of the preceding vacation, this particular class has appeared to take more than the average amount of interest in its work.

The total number of students registered in the Department within the year was 349. Of these 344 were medical students, of whom 110 commenced their fourth year in August, 1941, and their fifth in April, 1942; 106 commenced their fifth year in August, 1941; and 128 commenced their fourth year in April, 1942. There were 4 graduate students, of whom two were taking Pathological Chemistry as their major subject. One of the latter received the degree of Ph.D. One additional student was registered for, and received, the B.Sc. (Med.) degree.

The Department has carried out as usual the routine determinations of basal metabolic rate required by the Surgical and Obstetrical services of the Toronto General Hospital. The total number of such determinations was 241. These were made on 172 patients, of whom 153 were surgical and 19 obstetrical and gynaecological.

The Department has also made about 2,500 routine urine examinations for the University Health Service.

RESEARCHES

The following is a partial list of research work undertaken during the year:

- A. HUNTER and C. E. DOWNS. (1) Effect of amino-acids, carbohydrates and other substances upon the activity of the enzyme arginase. (2) Measurements of the affinity of arginase for arginine, ornithine and lysine. (3) General theoretical studies of enzyme inhibitors.
- A. HUNTER and A. G. GORNALL. The role of citrulline in the formation of urea in liver cells.
- A. HUNTER and F. I. LEWIS (Department of Surgery). Chemical studies of perforated duodenal ulcers.
- C. S. MCARTHUR. The chemical composition of atheromatous plaques (with the co-operation of the Banting and Best Department of Medical Research).
- T. F. NICHOLSON and R. E. HAIST (Department of Physiological Hygiene). The effect of staphylococcus toxin on the insulin content of the pancreas of the rat.
- T. F. NICHOLSON and E. J. MACMILLAN (Department of Bacteriology). Carbohydrate metabolism during staphylococcus infection in rabbits.
- T. F. NICHOLSON and D. L. SELBY. Kidney function in unilateral kidney damage. The effect of cyanide and fluoride.

PUBLICATIONS

- GORNALL, A. G. and HUNTER, A. "A colorimetric method for the determination of citrulline" (*Biochemical Journal*, vol. 35, 1941, pp. 650-8).
- HUNTER, A. "Sir Frederick Grant Banting" (*Proceedings of the Royal Society of Canada*, 1941, pp. 87-93).
- and DOWNS, C. E. "The inhibitory effect of amino-acids upon arginase, together with a method of estimating the affinity constants of enzyme-substrate and enzyme-inhibitor compounds" (*Canadian Chemistry*, vol. 26, 1942, p. 242).
- and WOODWARD, H. E. "The specificity of arginase: action upon argininic acid" (*Biochemical Journal*, vol. 35, 1941, pp. 1298-1306).
- NICHOLSON, T. F. and ARCHIBALD, R. M. "The use of micro-organisms in sugar analysis: 3. The effects of various salts on the activity of proteus vulgaris in removing glucose and some possible sources of error in its use as a reagent for the estimation of glucose" (*Biochemical Journal*, vol. 35, 1941, pp. 721-5).
- and HOLMAN, W. L. "Carbohydrate metabolism and staphylococcus infection in rabbits" (*Proceedings of the Society of Experimental Biology and Medicine*, vol. 49, 1942, pp. 75-7).

PATHOLOGY AND BACTERIOLOGY

Under the direction of Professor W. Boyd

The work of the Department has been much affected by the war owing to shortage of personnel, although this has not been allowed to interfere with

teaching. Dr. L. S. Jolliffe, who was appointed Lecturer in Pathology in July, left at Christmas, and it has not been possible to find a successor. Part of this work has been taken over by the Senior Fellow, Dr. J. W. Stevenson, including demonstrations in Surgical Pathology for the fifth year. We have been without one teaching Fellow all year, and also without a Fellow in Neuropathology. One demonstrator, Dr. P. F. McGoey, left to join a Red Cross Orthopaedic Unit, while another demonstrator, Dr. F. P. McInnis, joined the R.C.A.F. On account of the increased pressure on the head of the Department and also of the decreased leisure of the students due to speeding up of the course, it was felt that it was wise to discontinue the Pathology Thesis for the sixth year for the duration of the war.

Professor W. L. Robinson, who is responsible for the teaching of General Pathology, feels strongly that there is not sufficient time available for the teaching of this very important subject. He remarks that the students appear to be keenly interested but at times almost overwhelmed by the enormity of the subject which has to be presented in such a short time.

Work in the Museum has been handicapped by the lack of a Museum Fellow, but Miss V. L. McKinnon, whose long experience has made her familiar with every aspect of the work, has stepped into the breach in a most efficient manner. In addition to continuing the conversion work in the Museum, particularly with regard to the female reproductive system, liver and gall bladder, a viewing cabinet for x-ray films and microphotographs has been added to the bone room. The Department is indebted to Dr. R. I. Harris, Dr. R. M. Janes, and Dr. M. M. R. Hall for invaluable assistance in collecting and describing x-ray films illustrating lesions of the bones and lungs. A cabinet for filing and viewing Kodachrome pictures of gross and microscopic lesions has also been added, and it is believed that this will prove of great value in graduate teaching after the war. Voluntary use of the Museum has been made by students to a greater extent than in any previous year.

Dr. W. P. Neufeld and Dr. D. R. Grant have been voluntary workers in the Department.

RESEARCHES

Shortage of staff and consequent press of routine work and teaching have made investigation difficult. In the Autopsy division Dr. J. W. Stevenson and Dr. S. M. Hudecki have studied the problem of intestinal ulcers of uncertain etiology. Dr. C. E. Lindenfield has investigated the question of pigment occurring in cirrhosis of the liver.

In the division of Bacteriology Dr. R. M. Price has continued the determination of the types of tubercle bacilli infecting children under 14 years of age and for the first time has not found the bovine bacillus in any of the cases studied. This remarkable result in all probability is due to the widespread pasteurization of milk in the province. Further study of certain chromogenic acid fast bacilli isolated from man shows that they sensitize animals to tuberculin but do not produce gross lesions. Studies of avian tubercle bacilli from hogs have been carried out in some detail and the study of two strains of the vole bacillus is making progress.

Mrs. E. J. MacMillan in completing her requirements for a B.Sc. degree co-operated with Dr. T. F. Nicholson of the Department of Pathological Chemistry in the continuation of this combined study on Staphylococcus Infection and Carbohydrate Metabolism.

The search for chemotherapeutic compounds possessing marked antibacterial activity has been continued by Dr. P. H. Greey throughout the year. Two compounds have shown sufficient promise to warrant a more detailed experimental investigation. The effect on the intestinal flora of these new compounds has also been determined.

In the routine hospital laboratory a case of immunization to the M factor of human red blood cells was detected by Dr. Greey and Dr. S. Hanson. Studies on the Rh factor of red blood cells also are in progress.

In the division of Surgical Pathology, Dr. J. D. Duffin has completed his work on "Atrophy of the Adrenal Glands" commenced last year while on the autopsy service. He has made a further contribution in the way of a study of "Lipoid Storage Disease, with report of a case of the Gaucher type." Dr. O. C. MacIntosh has devised a new method for collecting sedimented cells from centrifuged specimens of pleuritic and other fluids on an aluminum button, and also a method for reclaiming old paraffin. These methods will be published in a journal of technical methods.

In the division of Neuropathology, the research activities were seriously reduced by having to work without a Fellow. Dr. A. F. Goggio's article on the "Mechanism of Contre-coup Injury" and Drs. W. L. Robinson and E. A. Linell's article on "Head Injuries and Meningitis" both appeared in the *Journal of Neurology and Psychiatry* for January, 1941. Dr. M. A. Ogryzlo has an article in the press of the *Archives of Neurology and Psychiatry* on "The Arnold-Chiari Malformation."

Professor Boyd has completed a new edition of his text-book on *Surgical Pathology*. He delivered addresses at Johns Hopkins University, George Washington University (St. Louis), and to the Congress on Medical Education and Licensure of the American Medical Association at Chicago.

PUBLICATIONS

- BOYD, W. "The function of the museum in the medical school" (*Journal of the American Medical Association*, vol. 116, 1941, pp. 2545-6).
- "The genesis of cancer" (*Proceedings of the 31st Annual Meeting of the Medical Section of the American Life Convention*, 1941).
- "Inflammation" (in *A textbook of surgery*, edited by Christopher, 1941).
- "Sir Frederick Grant Banting, 1891-1941" (*Transactions of the Association of American Physicians*, vol. 56, 1941, pp. 9-10).
- "X-ray films in the pathological museum" (*Journal of Technical Methods*, vol. 21, 1941, pp. 18-20).
- DONOHUE, W. L. "The pathology of mumps encephalitis" (*Journal of Paediatrics*, vol. 19, 1941, pp. 42-52).
- (with BRICK, M. A.) "Granulomatous lymphadenitis caused by filariae" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 315-17).
- GOGGIO, A. F. "The mechanism of contre-coup injury" (*Journal of Neurology and Psychology*, vol. 4, 1941, pp. 11-22).
- GORDON, A. L. "Friedländer's bacillus pyaemia" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 348-9).
- GREEY, P. H. "The determination of chemotherapeutic activity" (Appendix to article by Marchant, Lucas and McClelland in *Canadian Journal of Research*, vol. 20, 1942, pp. 5-16).
- HANSON, J. S. "Fatal anuria due to sulfapyridine poisoning" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 349-51).
- HOLMAN, W. L. (with NICHOLSON, T. F.) "Carbohydrate metabolism and staphylococcus infection in rabbits" (*Proceedings of the Society for Experimental Biology and Medicine*, vol. 49, 1942, pp. 75-7).
- KERWIN, A. J. "Fatal hyperinsulinism with cerebral lesions due to pancreatic adenoma" (*American Journal of Medical Science*, vol. 203, 1942, pp. 363-70).
- "Pulmonocardiac failure as a result of spinal deformity" (*Archives of Internal Medicine*, vol. 69, 1942, pp. 560-72).
- LINELL, E. A. and ROBINSON, W. L. "Head injuries and meningitis" (*Journal of Neurology and Psychiatry*, vol. 4, 1941, pp. 23-31).
- MAGNER, W. "Adeno-acanthoma of caecum: A case report" (*Canadian Journal of Medical Technology*, vol. 3, 1941, pp. 188-9).

- MAGNER, W. "Dysgerminoma of ovary" (*Canadian Journal of Medical Technology*, vol. 3, 1941, pp. 190-2).
- "Hyperinsulinism" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 49-52).
- "Pathogenesis of anaemia" (*Bulletin of the Vancouver Medical Association*, vol. 18, 1942, pp. 129-31).
- SHANKS, G. "Experiences with stored blood and the 'blood bank' " (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 7-10).
- (with PARKS, A. E.) "Studies on experimental lesions in the kidneys of rabbits" (*Journal of Laboratory and Clinical Medicine*, vol. 26, 1941, pp. 950-6).

PHARMACOLOGY

Under the direction of Professor V. E. Henderson

Professor V. E. Henderson, together with Dr. C. L. Yi, a Boxer Indemnity Fund Student, have almost completed a study of the pharmacology of respiration. The paper is now being written and will go to press in due course.

Professor G. H. W. Lucas has followed up some experimental work on the detection of strychnine in quantities which occur in medico-legal cases. This research has made substantial progress. He has also been engaged in a toxicity study which is a war effort and which has consumed a great deal of time.

Dr. D. D. Bonnycastle has completed his study of blood volume under anaesthesia and in co-operation with Dr. R. A. Cleghorn of the Department of Medicine has got material showing the distribution of normal blood volumes and red cell concentrations in normal dogs. This is a by-product from a research on shock, in which he combined with Dr. Cleghorn.

Mrs. M. O. Sweeten has almost completed a series of experiments on the toxicity of digitalis glucosides when administered at different rates.

Dr. Mavis Gunther, working under the Banting Research Foundation, is making a study of the lactation reflexes and mechanism. Progress in this research has been slow, partly owing to the difficulty in obtaining suitable animals and this, with the shortage of materials, has decreased the rate at which research could be carried forward in this Department.

PUBLICATIONS

- DAFOE, C. S. "Anaesthetics and shock" (*Anaesthesia and Analgesia*, vol. 21, 1942, pp. 114-16).
- FERGUSON, J. K. W. "A study of the motility of the intact uterus at term" (*Surgery, Gynaecology and Obstetrics*, vol. 73, 1941, pp. 359-66).
- HENDERSON, V. E. *Air crew in their element: Hints for the maintenance of fitness and confidence* (Toronto, University of Toronto Press, 1942). Pp. 35.
- LUCAS, G. H. W. "The battle against infection" (*Health*, vol. 10, 1942, pp. 17-19).
- "The detection of coramine" (*Canadian Journal of Research*, vol. 19, 1941, pp. 347-9).

PHYSIOLOGY

Under the direction of Professor C. H. Best

The teaching programme in the Department has been well maintained in spite of the absence of many of the members of the staff on duties arising out of the war. Dr. R. E. Haist has undertaken a revision of the laboratory course and he has been ably assisted by Dr. L. B. Jaques and other members of the staff. It is fortunate that a particularly well-trained and enthusiastic group of women teachers and research assistants is available to help in the work. The new course in Physical and Health Education has added considerably to the teaching load of the Department.

RESEARCHES

Professor N. B. Taylor, with the assistance of Miss M. S. Moorhouse, has been engaged during the past year in a study of traumatic shock and in the use of isinglass (fish gelatin) for the treatment of haemorrhage and shock. This material promises to become a valuable substitute for blood in restoring the blood volume in these states. The results of a series of experiments upon its use in haemorrhage were published in association with Dr. E. T. Waters last July. More recently a report upon its use in experimental traumatic shock has been submitted to the National Research Council, from which body Professor Taylor is in receipt of a grant for the prosecution of these researches.

Dr. S. B. Raska has been working in Professor Taylor's section upon the isolation of a hypotensive principle from rats' kidneys and upon the amine and amino acid oxidizing systems in the kidneys of hypertensive animals. He has also been engaged part-time in determining the fate of isinglass after injection and the effects of this transfusion material upon the plasma protein production following haemorrhage in dogs.

The facilities and personnel of the Section of Biophysics, under the direction of Dr. D. Y. Solandt, have been devoted almost entirely to research problems undertaken for the Royal Canadian Navy. In addition, Mr. John W. Dales has completed an investigation into the relationship between the time constants of various tissues and the effectiveness of different forms of electric currents when used to excite these tissues. The work on the functional characteristics of denervated muscle has been continued.

During the few months of the session spent in the department prior to obtaining leave of absence to join the Royal Canadian Air Force, Dr. Waters made a study of the relative merits of a solution of isinglass of fish origin and a solution of animal gelatin as possible substitutes for blood lost due to severe haemorrhage and possible shock. Dr. Waters believes that the results of this study show that animal gelatin is more efficacious in this regard than is isinglass because the latter substance when injected leaves the blood vessels so very readily, presumably because its molecular dimensions are too small. A number of dogs treated with solutions of gelatin were allowed to survive for some weeks after the injections. When examined at the end of this time the livers of those animals receiving large doses of gelatin showed histological evidence of some damage. This histological study was made in co-operation with Dr. M. T. C. Mitford. Dr. Mitford also studied the nature of the coagulation changes in the blood of rabbits in anaphylactic shock. It would appear that the prolongation of the clotting time of the blood of these animals in anaphylactic shock is due to the liberation of heparin, as happens in the blood of the dog during anaphylactic shock. However, the changes in the coagulation times and the amounts of heparin present in the blood of the rabbit during shock are very much smaller than those in the dog during anaphylactic shock.

With Miss H. J. Bell and Miss A. I. Jaffray, Dr. Haist has carried on some research on the factors affecting the insulin content of pancreas. The investigation of the effects of different diets has been extended and the effectiveness of dietary changes in the adrenalectomized rat has been tested. The effect of thyroidectomy is under study at present. Dr. Haist has collaborated with Dr. T. F. Nicholson of the Department of Pathological Chemistry, in a study of the insulin content of the pancreas in rats injected with staphylococcus toxin and rats infected with staphylococci.

Dr. Haist and Miss J. I. Hamilton have developed a method of producing secondary shock in dogs by the application of pressure to the limbs and studied the changes in blood pressure, blood cell volume, limb volumes, and plasma proteins. With Miss Bell, the carbohydrate changes in these animals are being followed; with Dr. E. Fidler the changes in blood cells; with Dr. Jaques and Miss D. U. Dale the changes in the clotting system; with Dr. A. W. Ham of the

Department of Anatomy, the histological changes; and with Dr. J. Manery Fisher and Dr. E. C. Randell of the Department of Biochemistry, the changes in potassium. Animals surviving after sublethal injury are under investigation at present. Miss Hamilton is studying renal function in these animals.

In work with Dr. Waters on the effect of injections of isinglass and gelatin upon blood platelets, Dr. Fidler found that a sharp fall occurred within a few minutes after the injection, but the return of the count was so rapid as to make it improbable that any serious complication would occur from this particular effect. Some dogs receiving frequent injections of moderate amounts showed an increased platelet count in about a week's time but this usually declined later to former levels. Counts made in animals used by Dr. Haist in experiments on shock showed a tendency for the platelets to fall relative to the red cells. The changes have not been sufficiently different from control animals, however, to admit the finding as significant. In experiments of Dr. Jaques and Miss Dale with dicoumarin, Dr. Fidler found no abnormal platelet counts.

Dr. Jaques has continued his studies on the purification of heparin and on various aspects of the physiological action of this anticoagulant. With Dr. Arthur F. Charles of the Connaught Laboratories, he has developed a colorimetric method for the assay of heparin. With Miss Dale he has undertaken an investigation of the effect of hydroxycoumarin on the blood-clotting system. This material lowers the prothrombin content of the blood and these investigators have found that it prevents thrombosis as well as clotting. This fact establishes, for the first time, a clear-cut demonstration of the relationship between thrombosis and clotting.

Miss Dale has also spent some time doing prothrombin determinations in collaboration with Dr. Haist and his group. The changes in clotting time in shock were found to be due to a decrease in the fibrinogen and prothrombin content of blood. In shock it was also found that there was a definite increase in plasma thromboplastin.

Dr. Mitford, who last year worked with Dr. Waters in his investigations on the effect of gelatin in dogs, has completed some aspects of this work. More recently, with Dr. Jaques and Miss Dale, an ambitious programme of research on blood clotting has been undertaken. A grant has been made to this group by the John and Mary R. Markle Foundation.

Dr. James Campbell was able to carry out a small amount of work in continuation of his peace-time researches before joining the Royal Canadian Navy. He made some further studies on permanent diabetes in dogs and his findings throw further light on the action of insulin in the prevention of diabetes in animals. Many of these studies are of great promise and will be pursued vigorously when this type of research can be resumed. Dr. Campbell made some studies on so-called galactose diabetes in rats and did some further work with Mr. E. A. Ryan and Miss R. B. Durick on fat metabolism in dogs.

During the past eighteen months the Head of the Department and Dr. D. Y. Solandt have spent a large part of their time on problems of naval medical research. In June, 1941, they were given honorary rank in the Navy to facilitate their investigations and later were placed on active service. As the problems increased in number and as practical results began to be secured, and after consultation with the President and the Dean, a Naval Medical Research Unit responsible to the Medical Director General of the Royal Canadian Navy was set up in the Department of Physiology and in the Banting and Best Department of Medical Research. Somewhat later Lieutenant James Campbell and Sub-Lieutenant Campbell Cowan joined the group. More recently Mr. Dales of the Department of Physiology and Mr. N. R. Stephenson of the Banting and Best Department of Medical Research, have been granted commissions by the Navy and attached to this Research Unit. Surgeon Lieutenant Edward Sellers has recently been attached to this Unit for special duty. Naval medical problems

have been studied at the various naval bases in Canada, in Newfoundland and in destroyers and corvettes at sea. Lieutenant Campbell and Sub-Lieutenant Cowan made various investigations on the Newfoundland-Iceland run while Surgeon Lieutenant Solandt and the Head of the Department made a further trip on a Royal Naval vessel to England, where a series of studies were made on behalf of the National Research Council of Canada and the Royal Canadian Navy. The exact nature of these researches cannot, of course, be disclosed, but it may be stated that the facilities of the University have proved of very great value in many problems of naval medical research. Dr. W. G. E. Eggleton of the Henry Lester Institute for Medical Research in Shanghai, Dr. Ruth C. Partridge, Miss Durick, Miss M. L. Hawxhurst, and others have been spending a great deal of time on naval medical problems.

PUBLICATIONS

- BELL, H. J., BEST, C. H., and HAIST, R. E. "The effect of partial pancreatectomy on the concentration of insulin on the pancreatic remnant" (*Journal of Physiology*, vol. 101, 1942, pp. 11-16).
- BEST, C. H. "Heparin and thrombosis" (*Harvey Lectures*, series 36, 1940-1, pp. 69-70).
- "How blood serum from donors saves lives" (*National Health Review*, vol. 9, 1941, pp. 196-7).
- "The significance of choline as a dietary factor" (*Science*, vol. 99, 1941, pp. 523-7).
- CAMPBELL, J., HAIST, R. E., and HAM, A. W. "The effect of insulin and anterior pituitary extracts on the insulin content of the pancreas and the histology of the islets" (*Journal of Physiology*, vol. 101, 1942, pp. 17-26).
- DALE, D. U. and JAQUES, L. B. "The prevention of experimental thrombosis by dicoumarin" (*Canadian Medical Association Journal*, vol. 46, 1942, pp. 546-8).
- JAQUES, L. B. "A quantitative method of assay for thrombin and prothrombin" (*Journal of Physiology*, vol. 100, 1941, pp. 275-82).
- and WATERS, E. T. "The identity and origin of the anti-coagulant of anaphylactic shock in the dog" (*Journal of Physiology*, vol. 99, 1941, pp. 454-66).
- WATERS, E. T. "A comparison of isinglass and gelatin as a blood substitute" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 395-8).
- and BEST, C. H. "The pancreas as an organ of internal secretion" (*Journal of the American Medical Association*, vol. 117, 1941, pp. 852-9).

PSYCHIATRY

Under the direction of Professor C. B. Farrar

In the undergraduate courses, fourth to sixth years inclusive, a greater amount of clinical material has been utilized. In view of the individual character of each patient with psychotic or neurotic symptoms or personality problems, efforts have been made to present the widest possible range of clinical types. Cases presenting problems having relation to the war have been featured. In addition to the regular courses, two special lectures were given in the sixth year on War Neuroses and Psychoses.

Five graduate physicians from the Ontario Hospital Service completed the course leading to the degree D. Psych. Of these Dr. G. D. Scott having attained the highest standing was awarded the Faulkner medal.

Staff changes: Dr. B. H. McNeel was granted leave of absence for the duration of the war and was succeeded in charge of the research unit by Dr. L. D. Proctor whose status was changed from that of Research Fellow to Demonstrator in Psychiatry. Dr. C. R. Myers who had directed psychological work in the research unit is also on leave of absence, this part of the work being continued by Miss E. V. Gifford, M.A., who had collaborated with Dr. Myers from the inception of the project.

RESEARCHES

The research work in this department continues to be carried out in collaboration with the Department of Medical Research under a grant from the Rockefeller Foundation, and incorporates clinical, physiological, and psychological investigation on various types of schizophrenic patients in an endeavour to observe and measure any related changes in these three divisions as the patient's psychosis changes. The clinical psychotic score is receiving mathematical treatment in an attempt to make this score still more objective. Insulin and electroshock therapy supplement routine hospital care. A preliminary report of some findings of this investigation appeared in the *American Journal of Psychiatry*, November, 1941. A further report which is being prepared for publication will probably suggest significant differences in the production of cerebral dysrhythmia depending upon the electrical mode of producing convulsive shock. Several cases of schizophrenia are under observation, in an endeavour to establish the relationship of environment to the onset of recurrent phases of the psychosis. A report on an exceptional case of prolonged coma is in preparation for publication. The improvement in a group of involutional melancholics and a group of catatonic schizophrenics following bilateral frontal leucotomies has been observed and is being followed. This latter work was done in conjunction with the Department of Neuro-Surgery under the direction of Dr. K. G. McKenzie. Further investigation into the carbohydrate abnormalities in schizophrenic patients is proceeding. Basal metabolic rate, respiratory quotient, intravenous and oral glucose tolerance, insulin tolerance and pyruvic acid tolerance tests, along with determinations of blood lactic acid and blood bisulphite binding substances, and phosphotase, before and after the various shock therapies, constitute the battery of observations in this project. Significant abnormalities have been found in the intravenous glucose tolerance tests and these findings will be set forth in a future publication. Dr. Roger Myers and Miss Elizabeth Gifford are preparing a report entitled "Measuring Abnormal Pattern on the Revised Stanford-Binet, Form L."

PUBLICATIONS

- EASTON, N. L. (with SOMMERS, J.) "Significance of vertebral fractures as a complication of metrazol therapy" (*American Journal of Psychiatry*, vol. 98, 1942, pp. 538-43).
- FARRAR, C. B. "Psychiatry" (*The 1941 New International Year Book*, New York, Funk and Wagnalls Co.).
- MCGHIE, B. T. "Psychological medicine in modern practice" (*Canadian Medical Association Journal*, vol. 45, 1941, p. 212).
- MCNEEL, B. H., DEWAN, J. G., MYERS, C. R., PROCTOR, L. D. (with GOODWIN, J. E.) "Parallel psychological, psychiatric and physiological findings in schizophrenic patients under insulin shock treatment" (*American Journal of Psychiatry*, vol. 98, 1941, pp. 422-9).
- PROCTOR, L. D. (with FRANKS, W. R.) "The blood glyoxalase activity of a series of mentally normal and mentally ill persons" (*American Journal of Psychiatry*, vol. 97, 1941, pp. 1403-5).

RADIOLOGY

Under the direction of Professor G. E. Richards

The course of undergraduate instruction in Radiology has not been altered as a result of war conditions up to the present and remains as follows:

In the fifth year, lectures and lecture demonstrations are given to the entire class. These lectures cover the principal subjects in which Radiology is of value in diagnosis or treatment and include ten lectures on the radiotherapy of cancer.

During the sixth year all classes are in the form of clinics or clinical demonstrations. These clinics are held in the afternoon three days each week during the period while the students are taking Surgery. An effort is made to cover

the radiological aspects of the cases on the Surgical Wards and the work is made as practical as possible.

In addition clinics are given on the Cancer Ward, Dunlap Building, where there is now a wealth of material for the teaching of cancer and its treatment, to each group in rotation.

A further reduction in the staff will be felt with the opening of the next term, Dr. Joseph Somers having received the appointment of Senior Radiologist for overseas service with No. 10 General Hospital, now being organized by the University of Western Ontario, London, Ontario. No other changes have occurred in the staff during the year.

SURGERY

Under the direction of Professor W. E. Gallie

In common with all the teaching departments, the depletion of the staff through enlistment in the medical services has had a profound effect on Surgery. Our difficulties have not been lessened by the fact that with each year of the war there has been a marked increase in the number of patients in the wards and in the number of operations to be performed. This last year saw the largest turnover of surgical work ever known in the General Hospital and the same is true also of the other hospitals. This pressure of work has come on the shoulders of a staff practically all beyond military age or medically unfit for service. They certainly deserve the thanks of the University and the hospitals for the greatly increased effort they have made.

The most important change in this Department is the forced abandonment till the end of the war of the course for the post-graduate training of surgeons. Under present arrangements all medically fit graduates after an eight months' rotating internship are accepting appointments in the Medical Corps of one of the services. This means that the senior internships and residencies which formerly were filled by Fellows in Surgery enrolled in the course for the master's degree must now be filled by women, by medically unfit, and by casual applicants who are able to come in for a few months only. While this change will have no great effect on undergraduate teaching or on the routine work of the hospitals, nevertheless it may have a profound effect on surgical practice, particularly in the Medical Corps, if the war lasts several years longer.

An interesting event of the year was the return of Colonel J. A. MacFarlane to America on two months' leave at the request of the Government of the United States in order that he might address the American Orthopaedic Association and American Medical Association on war injuries and discuss Canadian experiences with the Surgeon General. Colonel MacFarlane's papers were very well received.

An interesting development from the emphasis that has been placed on the courses on first aid and fractures in the fourth year has been that some fifty of this year qualified for the certificate of the St. John Ambulance Association. It is hoped that this may lead in the future to greater interest among practitioners scattered over the country in "first aid" and in the other activities of the Ambulance Association.

In spite of the depletion of staff, the routine teaching has been carried on satisfactorily. Valuable assistance has been given by Professors Wallace Scott and M. H. V. Cameron, who have been recalled from retirement, and by Doctor Jessie Gray who has accepted a temporary appointment at the General Hospital and on the teaching staff in Surgery.

A list of members of the surgical staff who were serving in the medical services at the beginning of this year, is as follows:

General Hospital:

Colonel J. A. MacFarlane, Surgical Consultant, C.A.S.F.

Lt.-Col. E. H. Botterell, Senior Surgeon No. 1 Neurological Hospital, C.A.S.F.

Major S. D. Gordon, Senior Surgeon, Plastic Unit, C.A.S.F.
Major C. Aberhart, in charge of Urology, No. 15 General Hospital, C.A.S.F.
Major F. G. Kergin, with No. 15 General Hospital, C.A.S.F.
Captain J. R. F. Mills, with No. 2 C.C.S., C.A.S.F.

St. Michael's Hospital:

Lt.-Col. J. W. Ross, Senior Surgeon, Camp Borden Hospital.
Major C. H. Watson, Officer in charge of Surgery, Rideau Military Hospital, Ottawa.
Major T. R. Sarjeant, No. 15 General Hospital, C.A.S.F.
Major J. W. Brennan, Officer in charge of Surgery, Chorley Park Military Hospital.

Toronto Western Hospital:

Lieut.-Col. A. W. M. White, Officer in charge of Surgery, No. 15 General Hospital, C.A.S.F.
Major H. R. C. Norman, Debert Military Hospital.

Hospital for Sick Children:

Lt.-Col. R. M. Wansbrough, Senior Surgeon No. 15 General Hospital, C.A.S.F.

To these have been added during this year, the following:

General Hospital:

Surgeon Lieutenant D. R. Mitchell, R.C.N.V.R.
Surgeon Lieutenant W. K. Welsh, R.C.N.V.R.

Hospital for Sick Children:

Captain W. S. Keith, No. 1 Neurological Hospital, C.A.S.F.
Dr. A. B. LeMesurier, with the Canadian Orthopaedic Hospital in Scotland.
Dr. F. R. Wilkinson, with the Canadian Orthopaedic Hospital in Scotland.

The post-graduate refresher course was held in October as usual and was devoted to fractures. Twenty-five students registered and expressed themselves as pleased with the course. In addition, the Department of Surgery took part in a post-graduate course on Industrial Medicine which was instituted at the request of the provincial government. It was attended by fifty students. It has been decided that owing to the necessity for giving special post-graduate and refresher courses to officers in the armed forces, the regular autumn post-graduate course will be postponed till after the war.

Two candidates were successful this year in winning the Master of Surgery degree. They were Dr. W. S. Anderson, B.Sc. Alta., of Edmonton, and Dr. J. W. McNichol of Hamilton. Dr. Anderson was awarded the Lister Prize in Surgery.

Major T. R. Sarjeant, of St. Michael's Hospital, who is with No. 15 General Hospital in England, became a Fellow of the Royal College of Surgeons of England.

RESEARCHES

Owing to the absence of all the younger members of the staff, the amount of research is necessarily much curtailed. During the year, however, members of the staff worked on a committee for the study of shock and on committees which are studying the treatment of burns and the treatment of wounds and compound fractures. These committees are working in conjunction with similar committees in other universities under the direction of the National Research Council, and it is hoped that the results will be of service to the armed forces.

Dr. Jessie Gray has conducted a series of experiments on the control of peritonitis by the use of sulfonamide drugs but the results are not yet apparent.

Dr. Angus McLachlin has made a study, in conjunction with Professor G. E. Richards, of the effect of exposure to x-ray on the healing of fractures. The

result will be reported later. It has been pointed out recently that following *x*-ray and radium therapy for carcinoma of the cervix and of the prostate, spontaneous fracture of the neck of the femur is apt to occur. If this is so, it is quite possible that prolonged exposure of fractures to *x*-ray during fluoroscopic examination or frequent exposures for *x*-ray photograph, may have some influence on the healing process.

PUBLICATIONS

- BOTTERELL, E. H. (with CARMICHAEL, E. A. and CONE, W. B.) "Sulphanilamide and sulphapyridine in experimental cerebral wounds" (*Journal of Neurology and Psychiatry*, vol. 4, nos. 3 and 4, 1941).
- DANIS, J. T. "Pilonidal cysts and sinuses: Etiology and treatment" (*University of Toronto Medical Journal*, vol. 19, 1941, pp. 3-11).
- FOULDS, G. S. "An unusual kidney tumour malignant papillary cystadenoma and papillary carcinoma with clear cells" (*Transactions of the American Association of Genito-Urinary Surgeons*, vol. 34, 1941, pp. 9-13).
- GALLIE, W. E. "Compound fractures" (*University of Toronto Medical Journal*, vol. 19, 1941).
- "Some lessons learned in the Great War" (*Surgery, Gynaecology and Obstetrics*, Feb., 1942, pp. 370-4).
- GRAHAM, R. R. "The present status of surgical procedures on the biliary tract" (*Texas State Journal of Medicine*, Sept., 1941, pp. 335-40).
- HARRIS, R. I. "Obliterative vascular disease: Treatment by sympathectomy" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 529-33).
- "War injuries" (in *A textbook of surgery*, edited by Christopher, 1942, pp. 131-9).
- and COULTHARD, H. S. "The early diagnosis of Pott's disease" (*Annals of Surgery*, Nov., 1941, pp. 931-5).
- "Prognosis in bone and joint tuberculosis: An analysis of the results of treatment and a consideration of the factors which influence the end results" (*Journal of Bone and Joint Surgery*, April, 1942, p. 382).
- LAIRD, R. C. "Bronchiectasis" (*Canadian Medical Association Journal*, vol. 46, pp. 143-6).
- MCCLELLAND, J. C. "'Anuria'" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 332-5).
- "Relationship between skeletal and genito-urinary tuberculosis" (*Journal of Urology*, vol. 47, no. 3, 1942).
- MCCOMB, R. J. A. "Uretero-sigmoidostomy and cystectomy" (*American Journal of Urology*, March, 1942, pp. 240-8).
- McKENZIE, K. G. and BOTTERELL, E. H. "The common neurological syndromes produced by pressure from extrusion of an intervertebral disc" (*Canadian Medical Association Journal*, vol. 46, 1942, pp. 424-35).
- MURRAY, D. W. G. "Fractures and dislocations of the carpus" (*Appleton's Surgical Therapeutics*, June, 1942).
- "Postoperative thrombosis and embolism" (*American Journal of Surgery*, June, 1942).
- PEARSE, R. "Lipo-fibro-sarcoma of the kidney" (*Canadian Medical Association Journal*, vol. 46, 1942, pp. 127-9).
- ROOME, N. W. "Retroperitoneal pneumography" (*Canadian Medical Association Journal*, vol. 45, 1941, pp. 56-8).
- SHENSTONE, N. S. "Experiences with total pneumonectomy" (*Journal of Thoracic Surgery*, vol. 2, 1942, pp. 405-13).
- "Report of a case of cavernous angioma of the lung" (*Medico-Surgical Tributes to Harold Brunn*, Berkeley, Cal., University of California Press, 1942).
- THOMSON, S. A. "Treatment of congenital talipes equinus: varus deformity with a modification of the Denis Brown method and splint" (*Journal of Bone and Joint Surgery*, April, 1942, pp. 291-8).

THERAPEUTICS

Under the direction of Professor R. F. Farquharson

No changes have been made in the general plan of undergraduate instruction in Therapeutics. In both teaching and research work, there has been close co-operation with the Department of Medicine.

Drs. Herbert E. Pugsley, Douglas B. Kelly, and Herbert B. Wallis, were appointed Assistants in Therapeutics.

Sub-Department of Anaesthesia

Teaching has been carried on as in previous years.

Sub-Department of Physical Therapy

Miss F. R. Hills succeeded Mrs. R. Finlay as assistant in Physical Therapy.

MEDICAL RESEARCH

Under the direction of Dr. C. H. Best

The activities of this department for the past year may be discussed under three headings: (1) Aviation Medical Research, (2) Naval Medical Research, (3) Problems, most of which have a relationship to war medicine but are not definitely conducted in collaboration with the Royal Canadian Air Force or the Royal Canadian Navy.

Aviation medical research which was initiated and organized by the late Sir Frederick Banting, the first Director of this department, has continued to be a major activity. Professor H. C. Bazett, Professor of Physiology in the University of Pennsylvania, has remained with our department and directs the activities of the various members who devote their time entirely to this aspect of war medicine. The scope of these researches is very broad and a number of results with immediate practical application have been secured. The group works in close collaboration with the investigators at No. 1 Initial Training School, R.C.A.F., in Toronto and is supported in part by grants from the Associate Committee on Aviation Medical Research of the National Research Council of Canada and in part from departmental funds. Dr. Bazett, Mr. J. E. Goodwin, Miss Helen Brock, Miss Eleanor White, Miss M. M. Shaw, and Miss M. J. Millar are on departmental stipends.

Dr. Wilbur Franks has been on leave of absence in England for most of the year.

The Naval Medical Research Unit, to which a number of the members of this department belong, has been discussed under the Department of Physiology. There has been very close collaboration between this group and Dr. Bazett's. As officially announced in Ottawa, the activities of this R.C.N. Research Unit have to do with research on selection of naval personnel, nutrition, improvements of living conditions on shipboard, seasickness, etc. These researches are supported by funds from the National Research Council of Canada, the R.C.N., and from this department and the Department of Physiology.

Dr. J. B. Bateman spent part of his time this year on Aviation Medical Research and is now spending his full time on Naval Medical Research.

Dr. D. A. Irwin and Mr. D. C. O'Connell have continued their investigation of the vole bacillus. As the vole bacillus grew slowly and sparsely on the best culture medium known, ways to stimulate the rate and amount of growth were studied. A culture medium was found that greatly enhanced the growth of the organism and made possible the animal experiments now under way necessary to determine the effect of vole vaccination on the resistance of animals to tuberculous infection. The financial aid given to this study by the Ontario Mining Association is gratefully acknowledged. Miss G. E. Speers has prepared the histological sections for the department.

Dr. Irwin has been engaged chiefly in war problems carried out in the department in co-operation with the National Research Council and Department of National Defence. Dr. Irwin, Miss E. L. Mahon, and Miss F. F. Herbert have assisted in the work of the Toronto Blood Donor Clinic.

During the past year Dr. C. C. Lucas and Dr. J. M. R. Beveridge have continued to devote a considerable part of their time to several chemical problems connected with war medical research. They have enjoyed the valuable collaboration of Dr. H. M. Macrae of the Department of Ophthalmology in one of these investigations. Dr. Lucas and Dr. Beveridge, with the technical assistance of Miss M. O'Grady, have commenced some nutritional studies connected with the fatty liver problem. The nature of the protein in the basal diet has been investigated to see whether factors other than the methionine:cystine ratio affect the production of fatty livers in rats on a high-fat diet. An attempt is being made to prepare a diet free from these two amino acids, but adequate in all other respects. The chemotherapeutic studies which had been conducted by Dr. Lucas in collaboration with Dr. P. H. Greey of the Department of Pathology and Bacteriology for a period of about three and one-half years, were drawn to a conclusion during the year. Mr. C. Marchant who had been preparing compounds for this study left in the autumn to take a teaching post and Dr. C. von Seemann, another collaborator, turned his attention to other problems. While a large number of substituted sulphonamides had been prepared and tested *in vitro* and *in vivo*, none was better than products already on the market.

Dr. von Seemann and Dr. Lucas have done some further work on the fractionation of the ether-soluble portion of Royal jelly. They have had the collaboration of Mr. G. F. Townsend, Provincial Apiarist, who has confirmed the stimulating effect of whole (fresh) Royal jelly upon the rate of growth and egg-laying ability of fruit flies. Using these insects as test objects it has been shown that vacuum-drying of Royal jelly causes a loss of the activity. Fractions separated in this laboratory are assayed at Guelph by Mr. Townsend. Some of the inactive compounds have been separated in pure form and elucidation of their structure is being attempted.

Dr. von Seemann has also spent some time preparing substances related to 3,3, methylene-bis (4-hydroxycoumarin), the haemorrhagic agent responsible for the toxicity of spoiled sweet clover hay. The synthetic products have been studied by Dr. Jaques of the Department of Physiology, as possible drugs for controlling blood clotting. While their therapeutic value remains uncertain, these synthetic compounds are serving as useful tools in the study of the fundamental phenomena associated with the clotting of blood.

The support of the work of Dr. Lucas' group has come in large part from the Banting Research Foundation.

Mr. Charles McArthur, who has been supported in part by the Department of Pathological Chemistry, continued his chemical study of the atheromatosis plaques from human aortas. The examination of the lipoid fraction has been completed. The fatty material contains phospholipoids, free cholesterol and its esters, and only traces of glycerides.

A study of schizophrenia and other mental disorders, carried on jointly by this department and the Department of Psychiatry, is financed in part by the Rockefeller Foundation. Mr. Gordon Parkes is engaged full-time, and Mr. Goodwin part-time, in electroencephalographic studies of psychotic patients.

Dr. Bruno Mendel and Miss Dorothy Mundell (Banting Research Foundation Fellow) continued their work on cholinesterase. The properties of their highly purified preparations were studied and large amounts of the enzyme were prepared from pancreas for animal experiments. Miss F. Strelitz started work on the purification of blood cell cholinesterase.

Mr. N. R. Stephenson continued the investigation of the kinetics of histaminase, and the reaction catalysed by the enzyme. Work was started on the preparation of large quantities of histaminase for use in further studies of its purification. He has also been working on Naval Medical Research problems.

PUBLICATIONS

GAGGE, A. P., BURTON, A. C., and BAZETT, H. C. "A practical system of units for the description of the heat exchange of man with his environment" (*Science*, vol. 94, 1941, pp. 428-30).

LAWSON, F. L. "The effect of sulfanilamide on the ability of rabbits and dogs to withstand high altitudes" (*American Journal of Physiology*, vol. 136, 1942, pp. 494-505).

MANNING, G. W. "Coronary disease in the ape" (*American Heart Journal*, vol. 23, 1942, pp. 719-24).

MARCHANT, C., LUCAS, C. C., and MCCLELLAND, L. "Chemo-therapeutic studies: Preparation of substituted sulphonamides" (*Canadian Journal of Research*, vol. 20, 1942, pp. 5-16).

VON SEEMANN, C., and LUCAS, C. C. "Chemotherapeutic studies in the thiophene series: I. The synthesis of 2-sulphanilamido-thiophene" (*Canadian Journal of Research*, vol. 19, 1941, pp. 291-5).

ART SERVICE

Under the direction of Miss Maria T. Wishart

Owing to Miss Eila Hopper's resignation last October as assistant medical artist, the work this year had to be carried on under the handicap of untrained, spasmodic assistance. Miss Hopper's resignation was a serious loss as her ability and training are outstanding and her approach to the subject of medical art is unusually comprehensive and original.

Miss Marguerite Drummond who succeeds Miss Hopper is a 1941 graduate of the Ontario College of Art, but unlike Miss Hopper has had no training in medical art. She therefore comes on a half-time basis as pupil assistant while carrying on her studies of anatomy and specific techniques.

The additional time involved in training a student somewhat curtailed the output of work and to offset this limitation temporary assistance was sought for a short period. Miss Sweesey, whose services were procured, was detailed to make water colour records for teaching purposes, of the early and middle stages of retinal arteriosclerosis. These were asked for by Dr. W. A. Wright of the Department of Ophthalmology. Slit lamp studies in half-tone of ariboflavinosis for Dr. A. E. MacDonald were also undertaken. The opportunity to concentrate consecutively for several weeks on drawings of the fundus was excellent, as constant practice in the use of the ophthalmoscope is the primary essential to a better knowledge of the subject.

The general character of the work has been varied throughout the year. The most satisfactory accomplishment has been the carrying out of illustrations for a text-book on Gynaecology and Obstetrics for Dr. W. A. Scott and Dr. H. B. Van Wyck.

Illustrations from the Department have been shown during the past year at meetings of the following: Ontario Medical Association, Toronto; Canadian Medical Association, Jasper; American Ophthalmological Society, Hot Springs, Virginia; American Orthopaedic Association, Baltimore, Maryland; Montreal Medico Chirurgical Society, Montreal; Royal Canadian Institute, Toronto. Other illustrations have appeared in the following publications: *Canadian Medical Association Journal*; *Journal of Bone and Joint Surgery*; *Surgery, Gynaecology and Obstetrics*; *British Journal of Surgery*; *American Journal of Surgery*; etc.

SUMMARY OF WORK OF ART SERVICE

1. *According to Medium of Work:*

1. Water colour.....	11
2. Half-tone.....	61
3. Pen and ink.....	75
4. Wax models.....	1
5. Pencil sketches.....	1
Total.....	149

2. *According to Departments:*

1. Anatomy.....	3
2. Neuro-Surgery.....	2
3. Obstetrics and Gynaecology.....	92
4. Ophthalmology.....	13
5. Pathology.....	1
6. Surgery.....	38
Total.....	149

3. *Number of Members of Faculty for Whom Work was Done.....* 12

MEDICAL SOCIETY

<i>Honorary President.....</i>	Dean W. E. Gallie
<i>Honorary Secretary-Treasurer.....</i>	Dr. H. Wasteneys
<i>President.....</i>	G. A. Gould
<i>Vice-President.....</i>	S. C. Best
<i>Secretary-Treasurer.....</i>	J. F. Murray
<i>Assistant Secretary-Treasurer.....</i>	W. G. Beattie

The Medical Society Executive, under the able chairmanship of Grant Gould, has again enjoyed a very successful year in directing the activities of the largest body of medical students in the Dominion. This success was only obtained through the whole-hearted co-operation received from the student body, everyone of which is a member of the Medical Society. There were indeed times when this enthusiasm "bubbled over" to such an extent that the Executive were forced to take steps to "take the steam" out of some of their fellow students. The punishment handed out on such occasions did not, however, arouse any feeling of bitterness on the part of the Executive or members concerned.

The Banquet Committee this year was under the excellent chairmanship of Stan Best. The guests of honour and speakers for the evening were Chancellor Mulock, President Cody, Dean Gallie, and, representing the Army, Brigadier R. M. Gorsline, the Navy, Surgeon Commander A. McCallum, and for the Air Force, Wing Commander J. W. Tice, whose place was taken by Air Commander R. W. Ryan. These gentlemen gave interesting and enlightening information concerning the jobs to be done by a medical officer in the above particular branches of the service.

Stan Best was also chairman of the At-Home Committee which succeeded in planning one of the most enjoyable medical dances of recent years. Music was supplied by Mart Kenney and his orchestra for the second successive year, a fine recommendation for his popularity among the students. Proceeds of this dance, which are in the neighbourhood of \$150, are to be donated to a fund designed to assist medical students in dire need of financial aid.

The Soph-Frosh committee carried out a more enthusiastic initiation this year than in the past, and under the chairmanship of Bob Crompton a very successful Soph-Frosh dance was held in Hart House gymnasium.

The only open meeting of the Medical Society was very well attended, and those present were rewarded with an excellent address by Dr. C. D. Gossage, Director of the Medical Service for men at the University. Dr. Gossage, who at the time was on leave from his duties with the Canadian Army overseas,

gave an interesting and enlightening talk on the life of a medical officer in the active service.

The annual elections were held in Hart House Theatre this year instead of in the Anatomy Building. Speeches were carried on immediately preceding the meeting and the plan worked very satisfactorily. The number of students voting was not reduced by this radical change from the procedure of past years at election time.

The *Medical Journal* was under the very able editorship of Burwell Taylor. Due to the speed up in the medical curriculum and the consequent diminution of free time possessed by each student, the *Journal* staff found it impossible this year to keep publication up to the level of one a month, due chiefly to the failure of articles forthcoming from the student body.

MEDICAL ATHLETIC ASSOCIATION

<i>Honorary President</i>	Professor William Boyd
<i>President</i>	D. R. Clark
<i>Vice-President</i>	D. W. S. Best
<i>Secretary-Treasurer</i>	J. A. Turner

The Athletic Association faced a problem this year in the form of a shortened spring term, as compared to other faculties and colleges in the University. Added to this was the obstacle confronting the first three years in the form of compulsory military training. Despite these problems the Medical Faculty fielded as many teams as in former years, with the exception of one team in each of volleyball, baseball, basketball, and hockey, as was suggested in the report of last year. There was a certain lack of interest in sports due, quite naturally, to the growing awareness of the world crisis and brought home the more forcibly by the present speed-up in the course.

The Executive kept well within the budget this year, finishing up with a considerable surplus; this amount to be used by the incoming Executive for spring sports. These sports will take the form of inter-year baseball, lacrosse, track and swimming meets.

With final examinations at Christmas the present Executive feels that a careful study of interfaculty schedules should be made before entering any teams in those sports which will extend up to or past this time. However, sports are essential in a Faculty of this size and efforts should be made to ensure that every man desirous of entering into interfaculty activity be given an opportunity to do so.

MEDICAL WOMEN'S UNDERGRADUATE ASSOCIATION

<i>Honorary-President</i>	Dr. M. McIntyre
<i>President</i>	Mrs. J. T. R. Stewart
<i>Vice-President</i>	Helen Grady
<i>Treasurer</i>	Beth Harrison
<i>Secretary</i>	Mary Hollington

During the 1941-2 session, the M.W.U.A. participated in a number of social activities.

Initiation of the twenty girls in first year took place at the beginning of October, in the Women's Union.

In November, the Medical Alumnae entertained us at a most enjoyable supper party at the home of Dr. Marion Kerr.

The annual Christmas Party was held on December 19 at the School of Nursing; children's toys and cans of food were brought by the members, and later sent to the University Settlement for their Christmas baskets.

The girls in fifth year were hostesses at a tea, held in Newman Hall, in honour of the graduating girls; they were each presented with an identification bracelet bearing the medical crest. Dr. Couch gave us an informal talk on his opinion of the position of women in medicine.

Mrs. Albert Matthews kindly invited the sixth-year girls and members of the Executive to help serve at a tea in honour of Dr. Ida Scudder; and we were privileged to be able to listen to her most interesting address on her work at the Valore Medical School in India.

It was decided not to hold the annual "Nabob" Tea this year, and, owing to this economy, the M.W.U.A. were able to donate a considerable sum of money to the Student Loan Fund. Girls in the preclinical years sold chocolate bars throughout the year, and also organized two tea-dances, in aid of the same cause.

MEDICAL WOMEN'S ATHLETIC ASSOCIATION

President.....Margaret McFarlane
Vice-President.....Agnes Eagles
Secretary-Treasurer.....Janey McLeod

Teams were entered this year in interfaculty tennis and basketball. Due to the academic year finishing at an earlier date this year, we were unable to enter teams to compete in the interfaculty hockey and swimming tournaments. Our standing was not high but a great deal of credit is due to the members of the teams, especially those of the senior years and to their managers.

An Athletic tea was held at the Park Plaza Roof Gardens at which awards were presented to the members of the teams. The Medical "M" was presented to Mary Hollington.

